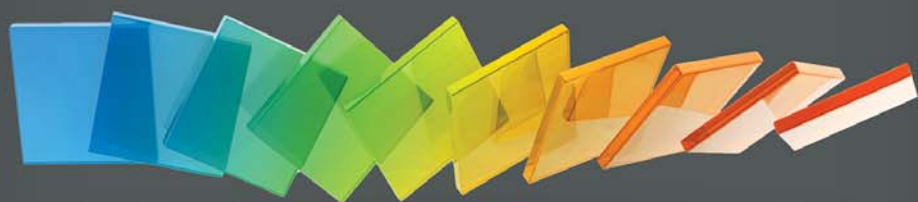


S E C O N D E D I T I O N

ADDICTION

and Change

How Addictions Develop
and Addicted People
Recover



CARLO C. DICLEMENTE



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THE GUILFORD PRESS

ADDICTION AND CHANGE

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ADDICTION *and Change*

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Recover

SECOND EDITION



CARLO C. DICLEMENTE



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To Lyn, Cara, and Anna

About the Author

Carlo C. DiClemente, PhD, ABPP, is Professor of Psychology at the University of Maryland, Baltimore County (UMBC), and Director of the MDQuit tobacco resource center, the Center for Community Collaboration, and the Home Visitor Training Certificate Program at UMBC. He is codeveloper of the transtheoretical model of behavior change and author of numerous scientific publications on motivation and behavior change with a variety of health and addictive behaviors. His books include *Substance Abuse Treatment and the Stages of Change, Second Edition*; *Group Treatment for Substance Abuse, Second Edition*; and the self-help resource *Changing for Good*. Dr. DiClemente is a recipient of awards including the Lifetime Achievement Award from the Addictive Behaviors Special Interest Group of the Association for Behavioral and Cognitive Therapies, the John P. McGovern Award from the American Society of Addiction Medicine, the Innovators Combating Substance Abuse award from the Robert Wood Johnson Foundation, and a Presidential Citation from the American Psychological Association.

Preface

Since the publication of the first edition of this book, there have been significant advances in our understanding of addictions and recovery. In this second edition, I have continued to deepen the understanding of the process of initiation and recovery with updated research and conceptual advances. I have expanded the discussion of the process of initiation and the journey of recovery to include advances in research on neuroscience, self-regulation and self-control, the influence of environmental forces and policies, mechanisms of change, implicit cognitive processing, behavioral economics, and the role of self-help, mutual help, and spirituality. In addition, prevention and treatment implications have been incorporated into the initiation and recovery stage chapters rather than forming separate chapters, as in the first edition. I have also included more information and research on how development (adolescence and young adulthood) influences the process of initiation and the variety of trajectories in the development of addictive behavior engagement patterns. Advances in treatment models for addiction and coverage of how both brief and more extensive interventions can effectively be employed in prevention and treatment of substance abuse have also been added. I have included more references to process addictions, like gambling and sex addiction; eliminated or consolidated information from treatment and prevention chapters into sections in stage-specific chapters; and added a separate chapter on preparation for initiation and a final chapter on some current critical areas for understanding addictions from an addiction and change perspective.

Our societal views on addiction are changing. Perspectives on legalization, harm reduction, prevention, and treatment are in flux, with views becoming more polarized and many policymakers and others showing great ambivalence about how to understand and handle addictions. Nevertheless, there continue to be serious shortcomings in current

perspectives and the efforts at interdiction, prevention, criminalization, and treatment that they support. Interdiction and elimination of the supply of substances feeding addictive behaviors appear impossible as long as the demand from current and new consumers remains high. New addictive products like e-cigarettes, synthetic marijuana, and prescription medicines, as well as new pharmacological and screening interventions, create new challenges and opportunities.

This second edition continues to offer an alternative, integrative perspective for understanding addiction and recovery. My research and review of the literature over the past 15 years have supported my conviction that addiction and recovery should be viewed as a process of behavior change. Addictions are not static states turned off and on with a switch. Rather they are multidetermined and take hold over time. They may begin with experimentation, then progress to casual use, and then on to abuse and dependence. Recovery is also a journey that takes time and effort and is still achievable, despite being filled with false starts and failed attempts, as evidenced by the numerous diverse individuals who have successfully recovered from addiction. Although the factors that lead a particular individual into and out of addiction are unique to that individual, the processes of becoming addicted and of recovery follow a common path. This path is also common across individuals and across addictive behaviors. In this edition, I illuminate that common path and illustrate how multiple factors and experiences can influence an individual's progress along this path. More specifically, this book isolates important dimensions of the process of change involved in starting and stopping an addictive behavior. It highlights similarities in the process across addictions, and it shows both addiction and recovery in a larger life context. When viewed as a process of behavior change, addictions can be managed more effectively.

This book views addiction through the dimensions of the Trans-theoretical Model (TTM) of intentional behavior change that James Prochaska and I developed and that I have further refined in research and writings over the past 35 years. The TTM emerged from our seminal research examining how smokers were able to free themselves from their nicotine addiction. Soon after we published it, the model began being applied to other addictive behaviors and lifestyle behaviors, as well as in treating physical and mental health conditions. Although the model described here is similar to descriptions in prior works, this book represents the first time I offer a complete, detailed, and precise version of the model that is updated to accommodate my continually developing perspective on its use and usefulness. This book also represents the first full application of the model to the process of *becoming* addicted.

Other specific adaptations and changes to the model presented in this book include a detailed explanation of the tasks for each stage of change and illustrations of how the stages and processes of change interact to produce movement through the stages of addiction and the stages of recovery. I have incorporated an extensive consideration of the context of change and how issues in multiple areas of life functioning interact with addiction and recovery to both help and hinder change. I continue to hope the views offered in this book will empower communities and enrich programs and policies to prevent addiction and promote recovery.

PART I. UNDERSTANDING ADDICTIONS IN TERMS OF CHANGE

This book is organized into four parts. Part I introduces addiction and recovery as a process of change. It begins in Chapter 1 with a brief review of perspectives that have been used to understand addictions over the past 100 years, highlighting their insights and blind spots. These different models point to biological, psychological, and social influences and attempt to understand how risk and protective factors create addiction or promote recovery. Whereas some models are unsatisfactorily one-dimensional, many are multidimensional but fail to explain how diverse dimensions interact over time to produce addiction or recovery. Most, however, are rather static in how they see addictions start or stop and offer a limited view of the path into and out of addictions.

Chapter 2 describes our current understanding of the process of behavior change as embodied in the TTM. This dynamic, developmental, and multidimensional change perspective offers an integrative framework for understanding change and the problems of addiction and recovery. The stages of change highlight the specific tasks of Contemplation, Preparation, Action, and Maintenance that mark the individual's progress toward addiction and the addicted person's pathway to recovery. Ten *processes* of change derived from different behavior change theories describe key mechanisms that move individuals through the stages. Five areas of functioning make up the *context* of change that contains the risk and protective factors, resources, and barriers that influence process activity and movement through the stages. Finally, critical *markers* of change track an individual's decisional balance and self-efficacy/temptation as he or she moves through the stages of change. The multidimensional, integrative TTM offers a panoramic view of addiction and recovery. Chapter 3 concludes with a description of the fully developed, established addiction that represents the final stage in the path to addiction and, at the same time, the starting point of the stages of recovery.

PART II. THE ROAD TO ADDICTION: THE JOURNEY THROUGH THE STAGES OF ADDICTION

Part II, comprising Chapters 4, 5, and 6, goes back to the beginning, describing the road to addiction and offering examples of stage transitions. I propose that a similar process and the same TTM dimensions mark the path to addiction as those that mark the path to recovery. Stages in the process of becoming addicted include moving out of Precontemplation to engaging in an addictive behavior and into serious consideration and experimentation with that behavior (Chapter 4), then to preparing to engage regularly (Chapter 5), and finally to developing a regular, problematic pattern of engagement (Chapter 6). Stage transitions that lead to addiction also involve shifts in the processes and markers of change as well as in contextual risk and protective factors. The end point of these stages of addiction is the well-maintained addiction described in Chapter 3.

PART III. QUITTING AN ADDICTION: THE JOURNEY THROUGH THE STAGES OF RECOVERY

Part III describes each of the stages of recovery from an addiction in detail. Clearly, once one has achieved a “well-maintained addiction,” the challenge lies in how to free oneself from this state. Chapters 7–11 describe the Precontemplation (7), Contemplation and decision making (8), Preparation (9), Action (10), and Maintenance (11) stages of recovery; discuss critical goals and tasks of each stage; and outline how the change dimensions of the TTM interact in the transition from one stage to the next. Case examples help to illustrate the challenges of each stage. Stable maintained recovery, the opposite of the well-maintained addiction, represents the end point of recovery and the end of this part.

PART IV. RESEARCH AND INTERVENTIONS AND A COMPREHENSIVE UNDERSTANDING OF ADDICTIONS

Linking these stages of addiction to the stages of recovery allows researcher and clinician to examine the entire journey of addicted individuals, from their first steps toward the addiction, through their struggle to free themselves, and on to the path to successful recovery. This panoramic view of the process of change offers a detailed, dynamic, integrative framework to enhance our research and clinical perspectives.

In Part IV, Chapters 12 and 13 examine the implications of a change process perspective for research on preventing addiction and promoting recovery. Chapter 12 brings together the problem of addiction with the process of change to create a synergy that enhances research and enlightens evaluation to help show how individuals become enslaved by addictions and how they can find their way to recovery. Chapter 13 (the final chapter) offers my vision of how this perspective on addiction and change connects with the future of addiction science and practice, addressing such topics as defining addiction and recovery, integrated care, personalized medicine, and the important role of self-regulation. I conclude with lessons I have learned that can contribute to a more comprehensive approach to understanding and addressing addiction.

It is my hope that this book will be useful to all who struggle with addictions and those who try to help these individuals, especially treatment providers, prevention specialists, researchers, and policymakers. Examples and descriptions offer insights into a variety of addictive behaviors, including smoking and nicotine addiction, alcohol abuse and dependence, legal and illegal drug abuse, sex addiction, gambling, and eating disorders. Prevention and treatment specialists from many different disciplines that deal with addictions will find information and insights to enrich their work. Researchers in these areas will discover a wealth of new ideas and concepts to examine and a more detailed view of the process of addiction and recovery. Policymakers, service provision organizations, and funding agencies and foundations will find views that challenge current practices and argue for a more complex and extensive view of addiction. Understanding the challenges and goals of each stage will enable them to offer assistance and develop policies and programs that mirror the process of change. The ultimate goal of this book is to assist professionals to help individuals to move out of the path leading to addiction, as well as to help those already addicted along the road to recovery.

Note that descriptions of all the case examples in this book represent fictional individuals except when referring to publicly available information. Although my experiences are represented in many of these examples, they do not represent any one individual, and in all cases significant descriptors have been altered so as to avoid any connections to any of my patients.

Acknowledgments

*T*he ideas and dimensions described in this book are the result of years of collaborative thinking and research that have involved hundreds of colleagues, research assistants, and graduate students, and thousands of clients, patients, and research volunteers. Although it is impossible to name them all, I want to thank each of them for their contribution to this book and to my understanding of addiction and the process of change.

My views of the process of change initially were developed and refined in a wonderful, collaborative synergy with my colleague and friend James Prochaska. Jim's intellect, energy, and enthusiasm made our collaboration rich and productive from our initial work together at the University of Rhode Island through the 10 or so years of coordinated, multisite research. Our discussions about the research and the model, which have taken place by ocean and pool and in conference and family rooms, have truly been peak experiences in my life. Our thoughts and contributions blended to create the Transtheoretical Model (TTM). I acknowledge his contribution to the concepts and thoughts in this book and am proud to have our names linked as developers of the model. However, I take responsibility for the description of the TTM of change in this work and for any limitations or problems in presenting these ideas.

The research and writings that examined and refined the TTM have been accomplished with the collaboration and contribution of many colleagues. Wayne Velicer, John Norcross, Joe Rossi, Ellie McConaughy, Joe Fava, and a great group of investigators and graduate students at the University of Rhode Island have been involved in much of the seminal work. During internship and initial stages of my career, I was fortunate to have colleagues at the Texas Research Institute of Mental Sciences who also supported me, including Sam Solway, Kevin Roberts, Carol Brady, and Jack Fletcher.

I want to thank Jack Gordon, who helped me open the first alcoholism treatment clinic that used the TTM as its guiding framework, and the many individuals who accompanied us on that journey. I also want to thank colleagues at the University of Texas School of Public Health and M. D. Anderson Hospital, who collaborated in a variety of research projects examining various dimensions of change with addictive behaviors, especially Patricia Dolan-Mullen, Michael Erickson, and Sally Vernon. I continued my good fortune in finding creative collaborators in Maryland and around the country who have joined with me to examine the process of change, including Alan Bellack, Melanie Bennett, Maureen Black, Melanie Gold, Steve Havas, Bankole Johnson, Carl Soderstrom, Chris Welsh, Jan Groff, Angela Stotts, Lee McCabe, Chad Werch, and Ray Daugherty, who worked with me on redefining addiction.

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I met Mary Velasquez in my days at TRIMS on one of my first research projects. She is a wonderful friend and collaborator who coordinated much of the Houston research on the model. Now a colleague, she continues to develop innovative research and promote the use of the model with addictions and other health problems. Her most recent contribution is the second edition of the *Group Treatment for Substance Abuse: A Stages-of-Change Therapy Manual*, based on the stages and processes of change that we completed with Cathy Crouch and Nanette Stephens. I am grateful for her dedication, support, and long-standing friendship.

When I moved to the University of Houston, I was very fortunate to have Joe Carbonari join with me to develop the alcohol-focused measures and to provide the statistical sophistication to evaluate many complex questions about the process of change. Together with many students and staff at the Change Assessment Research Program, we worked on Project MATCH and many other research endeavors. He has contributed valuable insights and analyses in the search for understanding addiction and change.

From the very beginning of my research on the TTM to today, I have been blessed with graduate and undergraduate research assistants who have contributed much hard work, as well as insights, challenges, and significant support. Although they are too numerous to name, I want to thank them for their help. In theses and dissertations, graduate students at the University of Houston and UMBC have explored many questions about the process of change and addiction. I want to mention those who have been involved most directly in research that examined aspects of addiction and change in the Change Assessment Research Program at the University of Houston: Scott Fairhurst, Amy Grossman, Sheryl Hughes, Elizabeth O'Connor, Nancy Piotrowski, Alaina Suris, Angie Stotts, Catherine Perz, Tom Irwin, Teresa King, Jennifer Rothfleisch, Ken Sewell, David Pena, Rosario Montgomery, Kelly Wright, and Kirk von Sternberg. At UMBC in the HABITS laboratory, I have a wonderful group of graduate students who have contributed to the research project exploring addiction and change, including Rebecca Lee, Jill Daniels Walker, Deborah King, Lori Bellino, Hildi Hagedorn, Nancy Haug, Angela Marinilli, Manu Singh, Shannon Whyte, Amanda Keevican, Janine Delahanty, Melissa Nidecker, Jennifer Malson, Leigh Gemell, and Deb Schlundt. Many other graduate students contributed to the second edition, including Sonia Arteaga, Tara Neavins, Shannon Whyte, Miranda Kofeldt, Kris Schumann, Brian Kiluk, Onna Brewer, Meredith Shaw, Daniel Rounsaville, Amber Norwood, Michael Earley, Angela Petersen, Michele Crisafulli, Taylor Crouch, Shayla Thrash, Preston Greene, Katie Wright, Meagan Graydon, Catherine Corno, Daniel Knoblach, and Alicia Wiprovnick. There is a saying that good graduate students are worth their weight in gold. If that is the case, I am a very rich man.

The research that I have done to develop my understanding of addictions and the process of change could not have been accomplished without three key ingredients: wonderful staff, sufficient funds, and participants. I have had a great group of co-investigators and staff and I want to thank in particular my support staff and graduate assistants who have helped develop and run the centers at UMBC, including Janine Delahanty, Francoise Jean-Louis, Terri Harold, Krystle Pierce, June Sutherland, Henry Gregory, Tatiana MacDougall, Tisha

Travaglini, Jade Charles, Lindsay Emery, Rebecca Schacht, and a host of undergraduate research assistants at the University of Houston and UMBC. I want to thank the National Cancer Institute, the National Institute on Alcohol Abuse and Alcoholism, the National Institute on Drug Abuse, and the National Heart, Lung and Blood Institute, as well as the Centers for Disease Control and Prevention, the Centers for Substance Abuse Treatment and Prevention, the Health Services Research Administration, the Robert Wood Johnson, Lippitz, and Pfizer Medical Education Foundations, and the many state agencies who have provided the funding for research and dissemination projects related to the TTM. I also want to thank the many research participants who took the time and made the effort to participate in the research while on their journeys to and from addiction. I am constantly intrigued by their paths into addiction and inspired by their stories of recovery.

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PART I



UNDERSTANDING ADDICTIONS IN TERMS OF CHANGE

CHAPTER 1



Models of Addiction and Change

A theoretical perspective provides a useful heuristic to advance our knowledge of any phenomenon and our ability to influence its existence, development, and growth.

Addictions have plagued society throughout history, as is evident from the Greco-Roman philosophers' call for moderation and condemnation of bacchanalian excesses to our 21st-century preoccupation with alcohol, drugs, food, sex, and gambling. Explanations for addiction often have consisted of blaming individuals for their excessive engagement in these behaviors. Scientific theories and models for explaining and understanding addictions have existed only for the past 100 years. Although our explanations have become more sophisticated and recent advances in neuroscience have enabled us to link addictions and brain activity, our understanding of addiction is far from complete.

WHAT IS AN ADDICTION?

Traditionally, the term *addiction* has been used to identify self-destructive behaviors that include a pharmacological component. The most stringent application would limit the term addiction and the companion label of *addict* to individuals with a *physiological* dependence on one or more *illegal* drugs. This definition usually includes a strong physiological craving, withdrawal symptoms, and the need for more of the drug to

get the same effect (American Psychiatric Association, 1980, 2013). In the strictest application of this definition, addiction would have to meet the definition of physiological dependence as in the diagnostic criteria of the DSM-III (American Psychiatric Association, 1980). However, within the last 30 years the scope of the term has expanded to include any substance use or reinforcing behavior that has an appetitive nature, has a compulsive and repetitive quality, is self-destructive, and is experienced as difficult to modify or stop (Orford, 1985). Expanded use of the term addiction has also included problematic relationships, excessive work behaviors, and even what some are calling *positive addictions* (e.g., exercise, meditation). Treatment professionals, addicts, and the public are confused by this shifting scope of meaning, and among scientists and practitioners in the field there is real concern about the continuing expansion of the term's application. If what is labeled "addiction" becomes too broad, the word will become meaningless. However, labeling a broader range of behaviors as addictions would be justified if they display common features that increase our ability to understand addictive problems and expand society's capacity to intervene.

The definition of addiction used in this volume is purposefully broad and can include an array of behaviors without making every human problem or pathology an addiction. In this book, addictions are understood as learned habits that, once established, become difficult to extinguish even in the face of dramatic and, at times, numerous negative consequences. The critical dimensions for an addiction are (1) the development of a solidly established, problematic pattern of an appetitive—that is, pleasurable and reinforcing—behavior; (2) the presence of physiological and psychological components of the behavior pattern that create dependence; and (3) the interaction of these components in the individual's life that make the behavior very important and resistant to change. Each of these aspects is critical for identifying an addiction. Addictive behavior patterns are repeated and become predictable in their regularity and excess. Powerful reinforcing effects motivate continued use, although these effects may shift from seeking pleasure to avoidance of negative consequences (Volkow, Koob, & McClellan, 2016). Dependence is the second necessary and critical dimension to define addiction. The term *dependence* indicates that there is a reliance on the behavior or its effects and that the pattern of behavior involves poor self-regulation, continues despite negative feedback, and often appears to be out of control. Moreover, reinforcers for engaging in this behavior often become prepotent in the life of the individual and an integral part of her or his way of life and coping. Reinforcers are both physiological (with a strong neurobiological component) and psychological (with a strong coping component).

They combine to create a powerful reward system that clouds awareness of problematic consequences related to the behavior and makes change difficult and, at times, seemingly impossible. In fact, failure to change, despite the outward appearance that change would be both possible and in the best interest of the individual, is considered a cardinal characteristic in defining addictions. In my view, change is the antithesis of addiction, similar to freedom being the opposite of enslavement. The polarities of change and addiction, then, can be viewed as central themes for understanding how people become addicted and how they can free themselves from an addiction.

This definition of addiction is broad but not so broad as to become meaningless. Most psychological and psychiatric problems are not appetitive in nature—that is, activities that are engaged in because of their inherent pleasurable and reinforcing effects. Moreover, most disorders do not require engaging in repetitive, intentional behaviors to become established as a problem. For example, there is nothing inherently pleasurable in a psychotic break or a depressive episode, nor do these chronic psychiatric conditions require that the individual engage in purposeful activities in order to develop these disorders. Addiction should not be used to describe most psychopathology. However, the scope of appetitive behaviors that become destructive and difficult to stop can include problematic behavior patterns related to eating, sex, drugs, and money. Habits most clearly associated with addiction include tobacco dependence, alcohol misuse and dependence, legal and illegal substance and prescription medication use disorders, a range of eating disorders (including overeating and bulimia), as well as gambling disorders (National Academy of Sciences, 1999). The clear similarities across these behaviors, which in their excessive forms are labeled addictions, include the following elements:

1. They represent habitual patterns of intentional, appetitive behaviors.
2. They can become excessive and produce serious consequences.
3. These problematic behavior patterns are stable over time.
4. They become important and salient in the life of the individual.
5. There are interrelated psychological and physiological components underlying the behavior.
6. Finally, in every case, an individual who becomes addicted to these behaviors has difficulty stopping or modifying them.

These elements represent essential components that underlie the criteria used to diagnose an addiction (American Psychiatric Association,

1994, 2013). However, categories of abuse and dependence have been abandoned in the latest version of the Diagnostic and Statistical Manual and replaced by mild, moderate, and severe use disorders (American Psychiatric Association, 2013).

The central, defining elements of addictive behaviors involve the seemingly compulsive and out-of-control nature of current behavior patterns and the level of difficulty encountered in changing them. However, most traditional models for understanding addictions have concentrated on the origins of these behaviors or on treatment options, rather than on how individuals go about changing them (McCrary & Epstein, 2013; U.S. Department of Health and Human Services, 1980). The thinking behind the emphasis on etiology reflects a belief that the best way to understand and, ultimately, to change addictions is to understand why and how they began. In most disease models, understanding etiology is critical because it often uncovers the source of the problem—a virus or a contaminated environment and a mode of transmission—which, when attacked or resolved, leads to the eradication of the problem. However, when it comes to addictions, single-cause etiological models have been woefully inadequate to explain either adoption or cessation of addictive behaviors (Donovan & Marlatt, 1988; Glantz & Pickens, 1992; Kovac, 2013; Smith et al., 2015). On the other hand, the focus on treatments and treatment programs emphasizes provider strategies and ignores the self-change efforts and process of change of the individual (DiClemente, 2006). Often the search ends up being for the best treatment for this disorder or for the *typical* individual with this addictive behavior rather than an understanding of the common elements underlying initiation or recovery.

There was a wonderful poster produced by the National Institute on Alcohol Abuse and Alcoholism in the late 1970s. The title read “The Typical Alcoholic American.” Pictured were more than 20 individuals who differed by age, race, occupation, and socioeconomic status and included an American Indian, doctor, housewife, elderly female, construction worker, and many others. Clearly, the point was that there is no typical alcoholic and that stereotypes need to be discarded to adequately address alcohol problems. Understanding addiction requires complex models to explain the diversity as well as the similarities among individuals who exhibit the addictive behaviors. If complexity were required for understanding any single addictive behavior, like alcohol, it would be even more important when examining multiple addictive behaviors, wherein heterogeneity among people and types of behaviors will be even greater. Any search for similarities and commonalities must account for the diversity and heterogeneity of the individuals who become addicted and respect the distinct and specific nature of each addictive behavior.

TRADITIONAL MODELS FOR UNDERSTANDING ADDICTION

Many different theories and models of addiction have been proposed. Several broad categories can be used to summarize these models. The most prominent explanatory models include (1) social/environment models, (2) genetic/physiological models, (3) personality/intrapsychic models, (4) coping/social learning models, (5) conditioning/reinforcement behavioral models, (6) compulsive/excessive behavior models, and (7) an integrative biopsychosocial model. Each of the models proposes a way of understanding addiction or a specific addictive behavior that focuses primarily on how addictions develop. Then, based on this etiology, the models propose suggestions for prevention and cessation as well as for intervention and treatment (Leonard & Blane, 1999; McCrady & Epstein 2013; U.S. Department of Health and Human Services, 1980; Walter & Rotgers, 2012). The following review of these explanations, although brief and cursory in comparison to the more extensive discussions offered in the previously cited books and monographs, will summarize strengths and weaknesses of each type of model. Supportive facts and interesting anomalies highlighted in the review will make the case for a more integrative model based on the process of human intentional behavior change.

Social/Environment Models

The social/environment perspective emphasizes the role of societal influences, peer pressure, social policies, availability, and family systems as mechanisms responsible for developing and maintaining addictions. Certain types of drug use and individual addictive behaviors occur more frequently in some subgroups. This has encouraged researchers to examine subcultures related to drug use (Carlson, 2006) and to explore the importance of environmental-contextual influences in the search for risk and protective factors (Clayton, 1992). Patterns related to specific drug-use behavior support interesting, well-defined sociocultural connections (Connors & Tarbox, 1985; Stone, Becker, Huber, & Catalano, 2012).

Social influence and support are often evident in the social context for use. Cocaine use has spawned the “crackhouse” where cocaine addicts gather; heroin addicts have created their “shooting galleries”; inhalant abuse often is concentrated among Hispanic youth (National Survey on Drug Abuse, 2010). These phenomena, along with the fact that drug users and abusers often have more family and friends who use drugs, make a clear case for the importance of social context in the acquisition of addictive behaviors (Guerrini, Quadri, & Thomson, 2014; Jessor & Jessor, 1980). In addition, conformity to some social norms

as well as deviance from others are offered by some investigators as explanations for addictions (Kaplan & Johnson, 1992). Illegal drug use, abuse, and dependence are viewed as deviant behaviors in many sociological models (Robins, 1974, 1979). Deviance then becomes an underlying cause, while a particular addictive behavior may reflect a response to the social context of peers (Lukoff, 1980). Research with Vietnam veterans demonstrated that higher preservice deviant behavior predicted initiation of heroin use (Robins, Helzer, & Davis, 1975) and is consistent with data that show a history of delinquency prior to onset of heroin use among heroin-dependent individuals (Glantz & Pickens, 1992). However, the enormous increase in marijuana use in the 1960s demonstrated that as use spreads across the population it becomes harder and harder to use deviance as an explanation for use or dependence (Robins, 1980). Moreover, social norms and deviance explanations are more difficult to use as the sole explanation for alcohol dependence, nicotine addiction, gambling, and eating disorders. Social control depends on the strength of the social bonds and interacts with self-control (Hirschi, 2004; Wiatrowski, Griswold, & Roberts, 1981).

Additional support for the social/environment perspective comes from data indicating that availability and social policies, such as restrictions in use and taxation, influence use and abuse of certain substances. Policies restricting cigarette smoking and advertising have made important contributions to the declining rate of cigarette consumption in the United States (U.S. Department of Health and Human Services, 2014). Changing the legal age for consuming alcoholic beverages, as well as pricing and taxation, have influenced use and abuse of alcohol (Connors & Tarbox, 1985; Wagenaar, Salois, & Komro, 2009). Macro-environmental influences also play an important role in the initiation and cessation of other addictions (Baldwin, Stogner, & Lee Miller, 2014; Connors & Tarbox, 1985; Engels, Hermans, van Baaren, Hollenstein, & Bot, 2009; Institute of Medicine, 1990). These explanations are certainly more applicable when the substances and behaviors are legal than when they are already considered illegal and banned in the society.

Some proponents of the social/environment models have concentrated on the more intimate environment of family influences as a central factor contributing to the onset of addictive behaviors. Family influences support both a genetic, nature-based pathway of influence and a nurture-based path focused on family interaction or family system (Hasin, Hatzenbuehler & Waxman, 2006; McCrady, Owens & Brovko, 2013; Sher, 1993). Advocates of family explanations point to problematic parental modeling of adult roles, which can include difficulties with relationships, conflicted and broken marriages, child maltreatment, low levels of parental monitoring, and either discouragement or excessive

use of alcohol and other drugs. These can be important influences on the child's experimenting with and continuing an addictive behavior (Brook, Brook, Zhang & Cohen, 2009; Chassin, Curran, Hussong, & Colder, 1996; Jessor & Jessor, 1977; Kandel & Davies, 1992; McGue & Irons, 2013; Stanton, 1980). Steinglass, Bennett, Wolin, and Reiss (1987) have proposed a more indirect route of transmission of alcohol problems through the child's adoption or rejection of family rituals and traditions. Stanton (Stanton, Todd, & Associates, 1982) and others (McCrary et al., 2013) have indicated that family system interactions can be responsible for one or more family members engaging in addictive behaviors because of the roles that are adopted to keep the system functioning. The idea is that family homeostasis acts as a regulatory structure in which the deviate addictive behavior plays an important role in individual and family functioning. This explanation has been used with alcohol problems, and particularly in discussions about eating disorders and anorexia (Jewell, Blessitt, Stewart, Simic, & Eisler, 2016; Minuchin, 1974; Selvini-Palazzoli, 1974). Proponents of a family influence model differ dramatically on the amount of influence attributable to genetic factors as opposed to psychosocial factors (Cadoret, 1992; McGue & Irons, 2013).

The social/environment perspective has many advocates. Proponents have presented substantial evidence for the role of social and environmental factors in the adoption of various addictive behaviors. However, as Robins (1980) points out, a natural history of drug abuse can only describe the current historical perspective. His description was of the 1970s drug use era. Drug use and abuse, including alcohol consumption, were different in the 1920s and appear to have substantially changed again by the first decade of the 21st century. Marijuana use today is viewed much differently than in the 1990s, with attitudes clearly influenced by legalization and medical use of marijuana. Social influences and trends shift, as do the popularity of different types of addictive behaviors. Shifting social trends in addictions argue for an important role for social and environmental influences, while at the same time clearly offering evidence against viewing the social/environment perspective as a fixed explanation for all addiction at all historical points in time. Social and peer influences are also complicated and include both peer selection and peer influences. These effects seem age dependent: selection of deviant peers may be more influential in early adolescence and peer socialization effects more influential in late adolescence and early adulthood (Burk, van der Vorst, Kerr, & Stattin, 2012).

It is also clear that even when there are substantial trends or social influences facilitating the development or cessation of a certain behavior, many individuals do not follow those trends. Of the first two inhalant

drug abusers that I saw in treatment, one was a southern White male in his 20s, the other a Hispanic teen. The latter fit the stereotype of an inhalant abuser in Texas, the former did not. Even when a new substance is hyped by peers (bath salts, e-cigarettes, salvia), the clear majority of youth do not experiment or use. Social and environmental influences clearly contribute to both the acquisition and the cessation of addictions at a population level but often fail to explain in any comprehensive manner individual initiation or cessation.

Genetic/Physiological Models

The most convincing information concerning the role of genetics in addictions is available in alcohol use disorders. Early family studies indicated increasing risk ratios for individuals as the number of alcoholic relatives rises and as the number and severity of familial alcohol problems rise (Schuckit, 1980, 1995; Schuckit, Goodwin, & Winokur, 1972). Twin studies as well as in-depth assessments of children of alcoholics continue to support the importance of genetics as a contributing factor to alcoholism (Hasin et al., 2006; McGue & Irons, 2013). The role of genetics for other drugs of abuse varies by type of drug and whether one is focusing on initiation or progression as well as the age of the adolescent (McGue & Irons, 2013). Most scientists acknowledge a genetic influence on susceptibility to substance abuse (Hasin et al., 2006). However, the search is not for a single “alcoholism gene”; rather, the consensus is that the heritable component of addictive behavior will be polygenetic and complex (Begleiter & Porjesz, 1999; Gordis, 2000; McGue & Irons, 2013). Moreover, there seem to be many generic genetic risk factors that include inherited risk for externalizing and internalizing disorders and a common factor called behavioral disinhibition (Hicks, Kreuger, Iacono, McGue, & Patrick, 2004; Iacono, Malone, & McGue, 2008; Kendler, Myers, & Prescott, 2007; Kreuger et al., 2002; Tsuang et al., 1998).

For a long time, physical dependence and addiction were understood as synonymous. Traditional markers to define drug dependence were both tolerance—the need for more of a substance to achieve the same effect—and a clear withdrawal syndrome, which included physical reactions like nausea and a craving for the substance. The 1994 revision of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) of the American Psychiatric Association changed the definitions of drug abuse and dependence so that this distinction between abuse and dependence based solely on physiological tolerance was practically eliminated. The latest revision (DSM-5), in 2013, has eliminated the terms and the distinction between abuse and dependence, opting for a more dimensional model for understanding addiction that focuses on levels

of disordered use that can be mild, moderate, or severe based on the number of symptoms present. These symptoms include a number of indicators of neuroadaptation, like craving, withdrawal, and tolerance, as well as a number that reflect impaired self-regulation, which have both behavior and brain components. In summary, there have been enormous advances in our understanding of the neurobiology of alcohol and drug addiction (Koob & Le Moal, 2001; Koob & Volkow, 2010) that look to brain chemistry and behavioral responding as critical indicators. Even for addictive behaviors that do not involve a substance such as gambling, it appears that the “rush” or “high” produced by the behavior is an important element (National Academy of Sciences, 1999). This physiological reaction and its potential for creating and reinforcing problematic patterns of behavior is often used as a reason for the inclusion of gambling under the rubric of addiction (American Psychiatric Association, 2013; Reuter et al., 2005). However, physiological pathways are complicated and certainly not uniform in mechanism of action or type of involvement across addictive behaviors.

There are also some interesting anomalies that both support and challenge the genetic/physiological explanations of addictions. In the 1970s, researchers became quite pessimistic about the prospect of getting smokers to quit and began to focus on developing a safer cigarette, one that did not contain nicotine. They attempted to create cigarettes using cabbage leaves and other organic materials. However, no one would smoke cigarettes that did not have the active nicotine effect! Similarly, methadone-maintained patients often lament the fact that it does not produce the “heroin high” that got them addicted, although it does mimic the physiological effects of a narcotic and helps them avoid withdrawal. Clearly, physiological reactions to an active drug play an important role in creating addictions. However, research studies also have produced visible alcohol or drug effects using placebos that contain no active substance. These studies appear to contradict a completely dominant role for physiology and argue for the importance of expectations or social context in addition to the actual physical effect (Collins, Lapp, Emmons, & Isaac, 1990; Fromme & Dunn, 1992; Leigh & Stacy, 2004; Schulenberg, Wadsworth, O'Malley, Bachman, & Johnston, 1996; Southwick, Steele, Marlatt, & Lindell, 1981). In bar laboratory settings, many investigators have shown that drinkers will act as if they are intoxicated even when given nonalcoholic drinks (Collins, Parks, & Marlatt, 1985; Goldman, Del Boca, & Darkes, 1999; Larson, Overbeek, Granic, & Engels, 2012).

The physiological effects of tolerance and withdrawal as well as science and society's movement away from an explanation of addiction as morally reprehensible behavior have led to addictions being understood

within a medical model. This perspective has also been promoted in the materials describing the 12 steps and 12 traditions of AA that talk about the disease of alcoholism, which they liken to a chronic allergic reaction (Alcoholics Anonymous, 1952). Others believe alcoholism is a disease that is not completely physiologically based (Miller & Kurtz, 1994; Sheehan & Owen, 1999). The disease model has been instrumental in shifting society's view of alcohol dependence from one of moral deviance and sinful behavior to one that promotes understanding and treatment. However, there are many criticisms of this use of a disease model for understanding alcoholism (Donovan & Marlatt, 1988; Lewis, 2015; Miller & Rollnick, 1991). It is also interesting to note that proponents of the disease model for alcoholism will not always use the same explanation for drugs of abuse and have some difficulty when the concept is extended to behaviors like gambling. Even though brain regions, neurochemistry, and physiology are clearly implicated in the initiation and maintenance of addictive behaviors, these behaviors and the end state of addiction have multiple determinants. It is probably best to consider addiction as a chronic condition rather than a physical disease. However, the term "brain disease" has become a common way to describe addictions because of the neurobiological component (Volkow et al., 2016).

For all addictive behaviors, there appears to be an important role for physiological and brain mechanisms as well as genetic factors in the behavior's initiation, problematic long-term use, and disordered use. However, even among researchers who focus on genetics and the brain, there are many questions and concerns about assigning sole causality or even primacy to genetic/physiological factors for all substances and for all phases of becoming addicted (McGue & Irons, 2013; Newlin, Miles, van den Bree, Gupman, & Pickens, 2000). Because so many different individuals can become addicted to so many different types of substances or behaviors, biological or genetic differences do not account for all the cultural, situational, and intrapersonal differences among addicted individuals and addictive behaviors (Hasin et al., 2006). There seems to be a clear contribution of environment in all the heritability models, such that gene–environment interactions are the best way to consider the influence of genetic factors across the lifespan (McGue & Irons, 2013).

Personality/Intrapsychic Models

Addictive behaviors have often been conceptualized as a symptom of more historical, intrapsychic conflicts, often labeled disorders of personality. Proponents of this perspective point to the frequent correspondence between drug abuse and a diagnosis of antisocial personality

disorder or its predecessor, conduct disorder and juvenile delinquency, as evidence of drugs being a symptom of a larger psychological problem (Robins, 1980; Weiss, 1992). The search for the alcoholic or prealcoholic personality has persisted for years, with mixed and unconvincing results (Cox, 1985, 1987; Nathan, 1988; Sutker & Allain, 1988). Some prealcoholic personality characteristics seem to be related to later alcohol dependence: impulsivity, nonconformity, antisocial behavior, independence, and hyperactivity (Cox, 1985; McGue & Irons, 2013; Stone et al., 2012). However, these relationships may be true more for male than female alcoholics, and are not always present in every male alcoholic. In the related eating disorder arena, the literature on anorexia nervosa often describes a typical adolescent female with low self-esteem and an intense desire for control and autonomy (Cassin & von Ranson, 2005; Wonderlich, 1995). Psychoanalytic perspectives have characterized both alcoholics and persons with eating disorders as individuals who have had conflicts at the oral stage of psychosexual development and were fixated at this stage (Freud, 1949; Khantzian, 1980; Leeds & Morgenstern, 1995). Even the perspective of Alcoholics Anonymous describes a personality dimension when it calls alcoholism the result of a defect in character and a deficit of will (Alcoholics Anonymous, 1952; DiClemente, 1993a).

Many theorists explicitly state or imply that some internal mechanism or conflict drives what can be considered a “proneness” to addiction (Smart, 1980). Sometimes these conflicts can be the result of environmental problems, but most often they are viewed as internally derived and leading to dysphoria or a sense of meaninglessness (Greaves, 1980). Psychological dimensions, which can be conceptualized as temperaments or traits, have also been employed as predictors of addiction. Antisocial traits, low self-esteem, alienation, religiosity, high novelty seeking, activity level, and emotionality have been identified as precursors or predictors of later addiction (Kaplan & Johnson, 1992; Siegel, 2015; Stone et al., 2012; Tarter, 1988; Wills, McNamara, Vaccaro, & Hirk, 1996). Risk taking and problematic decision making are often related to addiction vulnerability as well as to pathological gambling and excessive Internet use (Balogh, Mayer, & Potenza, 2013). These traits are thought to produce the internal setting in the individual where availability or peer pressure can induce not only experimentation and use but also abuse and dependence. Many of these traits are related to self-regulation deficits and brain development, so adolescence can create a perfect storm for initiation of addictive behaviors (O'Connor & Colder, 2015).

Although it would seem logical to assume a role for internal personality dynamics in the addiction process, the evidence to date does not support the existence of an addictive personality that predictably and

reliably will result in a severe use disorder for addictive behaviors. There is a subgroup of “addicts” diagnosed with multiple drugs and other addictions who demonstrate a tendency to engage in multiple addictive behaviors (gambling, drug use, and alcohol misuse). This group would seem to be a prime location for discovering personality dynamics. Nonetheless, there are individuals who share traits or profiles with members of this group, but do not engage in any of these behaviors. As with the sociological and genetic factors described previously, personality factors appear to contribute to the development or establishment of an addictive behavior problem, but the part of addiction that personality factors or deep-seated intrapersonal conflicts can account for appears small (Nathan, 1988).

Coping/Social Learning Models

Addictions often are considered the result of poor or inadequate coping mechanisms. Unable to cope with life stresses, addicts turn to their addiction for escape or comfort. From this perspective, individuals use substances as alternative coping mechanisms and rely on their addictions to manage situations, particularly those that engender feelings of frustration, anger, anxiety, or depression (Wills, Pokhrel, Morehouse, & Fenster, 2011; Wills & Shiffman, 1985). Appraisal-focused coping, problem-focused coping, and emotion-focused coping are considered important domains of coping responses (Lazarus & Folkman, 1985; Moos, Finney, & Cronkite, 1990). One’s ability to cope with stress—in particular, with anger, frustration, boredom, anxiety, and depression—has been identified as a critical deficit area in many theories or models of addiction (Pandina, Johnson, & Labouvie, 1992). Emotion-focused coping is considered an important dimension. Alcohol, for example, has been viewed as addictive because of its tension reduction (Cappell & Greeley, 1987) or stress response dampening (Sher, 1987) effects. Because alcohol’s effects on stress and tension are quicker and often more effective in dealing with a stressful event than other, natural coping responses, alcohol becomes the preferred, and possibly the only, coping mechanism (Koob & Le Moal, 2000).

The social learning perspective emphasizes social cognition and not simply coping. Bandura’s social cognitive theory tends to focus more on cognitive expectancies, vicarious learning, and self-regulation as explanatory mechanisms for addictions (Bandura, 1986; DiClemente, Fairhurst, & Piotrowski, 1995; Maisto, Carey, & Bradizza, 1999). There is a growing literature focused on how expectations about the effects of a specific substance or addictive behavior are related to use, abuse, or excessive engagement. Alcohol expectancies have been found to predict

initiation of use and progression to problematic use (Brown, 1985; Connors, Maisto, & Dermen, 1992; Goldman, 1999; Wood, Read, Palfai, & Stevenson, 2001). For example, individuals who believe that alcohol will make them more attractive, less inhibited, better lovers, and more fun to be around would be more prone to use alcohol and to get in trouble with alcohol, particularly in social settings (Goldman et al., 1999).

The social learning perspective also emphasizes the role of peers and significant others as models. Advertisers who use sports figures to promote a product clearly employ social influence principles. Alcohol and cigarette promotions in sports arenas offer more subtle examples of the power of modeling as an influence on substance use. The influence of expectancies is not limited to substances of abuse. The popularity of lotteries and the well-promoted jackpot for a lucky individual as well as our societal devotion to being thin play a clear role in promotion of gambling and eating disorders, respectively.

Coping and social learning perspectives have become quite popular among addiction researchers and clinicians. However, many successful businessmen and athletes who appear to have good general coping skills, or at least skills good enough to become successful in a competitive environment, get ensnared by addictive behaviors. Generalized poor coping cannot be the only reason individuals become addicted. That seems particularly true for people who engage in the behavior because of the positive enjoyment effects and not simply the relief of problematic emotions (Orford, 1985). However, even if coping defects are not the critical reason for developing addictive behaviors, one important consequence of addiction is a narrowing of the addicted individual's coping repertoire. Thus, coping responses may be even more important as a way of remediating the consequences of an addiction than as a contributor to its development (Kuntsche, Knibbe, Engels, & Gmel, 2010; Shiffman & Wills, 1985).

Conditioning/Reinforcement Models

There is a substantial body of research demonstrating the reinforcing properties of each substance of abuse (Barrett, 1985). Animal and human studies show that many of the same principles that define conventional reinforcers appear to operate in the ingestion of psychoactive drugs (O'Brien, Childress, McClellan, & Ehrman, 1992) and are clearly related to neurobiology (Volkow et al., 2016). Animals' responses to obtain psychoactive drugs seem to operate according to schedules of reinforcement (Barrett, 1985). Reinforcement theory seems an appropriate explanation for subtle physiological effects of substances as well as for the gross motor drug-seeking elements of addictive behaviors.

The classic example of the power of reinforcement has been the slot machine; its variable-ratio reinforcement schedule creates a stable, hard-to-extinguish pattern of behavior. Reinforcement models have been used to understand the initiation of addictive behaviors as well as their stability, which makes them difficult to modify. Reinforcement models focus on the direct effects of the addictive behavior, such as tolerance, withdrawal, and other physiological responses/rewards, as well as the more indirect effects described in opponent process theory (Barrett, 1985; Koob & Le Moal, 2008; Solomon & Corbit, 1974). This latter theory posits that after the initial pleasurable effect initiates use, the appearance of an effect (dysphoria and withdrawal) that is opposite to the more pleasurable effect drives the continued use of that substance. Reinforcing effects appear to play an important role when addictive behaviors are viewed as goal-directed, operant behaviors. However, even proponents of this model describe drug taking and other addictive behaviors as complex, multidetermined behaviors (Barrett, 1985).

Many theories and theorists also have used Pavlovian conditioning to understand addiction. The ability of substances to produce tolerance and withdrawal effects in laboratory animals has been at the center of basic research on substance use disorders. Demonstrating tolerance effects in animals set the stage for testing Pavlovian conditioning paradigms with these animals. It was not long before anticipatory drug-related behaviors could be linked to cues associated with the actual drug use. Situational cues could then elicit initial drug reactions and lead to “relapse,” or resumption of the addictive behavior (Hinson, 1985). This process involves multiple areas and mechanisms in the brain (Carey, Carrera, & Damianopolous, 2014).

Several phenomena in the drug culture also support the important role of conditioning and cues in developing and recovering from addictive behaviors. The “needle high” of the heroin addict, who only needs to insert a needle with saline solution to get a partial replication of the actual drug-taking experience, supports a conditioning model, as does the experience of cocaine addicts who begin to sweat and get anxious at the sight of any bolus of a white substance, be it sugar or flour. In fact, many addictive behaviors seem to operate in a situation-specific manner. Until the expansion of gambling venues in many states, travel to a gambling center like Las Vegas, Reno, or Atlantic City was often critical for compulsive gamblers. Many smokers have places or settings where they do not smoke. Certain types of food (“junk”) or eating settings (home vs. restaurant) seem most related to eating disorders. Drinking behavior and bars are significantly linked. Situational cues and classical conditioning have an important role to play in understanding addiction and change.

More recently, classical conditioning approaches that originally focused only on physiological responses have been expanded to include cognitions and psychological mechanisms in the repertoire of cues and responses (Adesso, 1985; Brown, 1993; Brown, Goldman, & Christiansen, 1985; Robinson & Berridge, 1993). This has led to an integration of conditioning and social learning perspectives. For example, expectancy effects can vary in strength and magnitude depending on the presence of various cues. In fact, a growing body of evidence shows that many behaviors thought to be direct effects of alcohol or drugs (e.g., increased aggression, disinhibition) can be produced by placebo doses in the right setting with the appropriate cognitive expectation (Collins et al., 1985).

The latest work in this area focuses on how repeated exposure creates implicit mechanisms, like attentional bias for alcohol and drug cues, that influence use, craving, and relapse (Field & Cox, 2008). There are also approaches being developed and tested to change implicit bias with both visual and manual manipulations (Schoenmakers et al., 2010; Weirs et al., 2006). Thus, conditioning involves physiological responses, as well as both explicit and implicit cognitive processing, which influence engagement in an addictive behavior.

There is substantive evidence for the role of conditioning and reinforcement effects in addictions. However, models that use only these two principles to explain acquisition and recovery appear to have difficulty explaining all the phenomena of addiction and change. Once addicted, even severe punishing consequences seem to be unable to suppress or extinguish the behavior. Even after long periods of abstinence, extinction appears problematic under certain conditions. For example, some women smokers stop smoking during pregnancy only to have the addiction reappear after the birth, despite 6–9 months of abstinence (Stotts, DiClemente, Carbonari, & Mullen, 1996). They appear able to suspend cigarette use at will across situations because of anticipated negative effects on the fetus. As with the previous models, the conditioning/reinforcement ones offer some insight, particularly into the development of substance use problems and into the situational cues that can promote relapse after a quit attempt, but they do not explain all initiation or successful change (Marlatt & Gordon, 1985; Orford, 1985).

Compulsive/Excessive Behavior Models

The difficulty stopping or successfully modifying addictive behaviors and the overdetermined and repetitive nature of most addictions have led some theorists and practitioners to link addiction with ritualistic, compulsive behaviors like repeated hand washing or cleaning rituals. The commonalties include the sense that the behavior is out of the

individual's control and appears to be trying to satisfy a psychological conflict or need. This same perspective can encompass both the compulsive and excessive types of models (Orford, 1985).

Those who compare addictions to compulsive behaviors most often come either from analytic perspectives, where addictions reflect deep-seated psychological conflict, or from a biologically based view that compulsive behaviors represent a biochemical imbalance reflected in brain neurotransmitters. Proponents of the first explanation would envision the solution in terms of analysis or conflict resolution. Proponents of the latter would explore psychoactive pharmacological treatments to bring the addictive/compulsive behaviors under control. Although these views are similar to ones described earlier under personality or physiological models, the compulsive behavior explanation seems to argue that the actual behavior, be it drug taking, eating, or alcohol consumption, is less important than the compulsive mechanism that somehow became attached to this behavior.

Orford (1985) has conceptualized addictions as excessive appetites where the appetitive nature of the behaviors or activities creates the potential for excess. Thus eating, sexual activity, and gambling share with alcohol and drug use not only a potential for excess but also a similar process leading to excess. This process of moving to excess is described primarily as a psychological one, wherein the appetitive activities have many interactive determinants that are important in diverse areas of functioning and that become involved in a "developmental process of increasing attachment" best understood by a "balance-of-force social learning model" (pp. 319–321). Understanding both treatment and change of excessive behaviors would require personal cost–benefit analyses and a decision-making process as well as rebuilding the balance in one's life.

Although the compulsive and excessive behavior models share common explanatory components, they can differ dramatically in their suggested cures or treatments. Once again, the connection between the addictive behavior and the individual's psychological functioning appears highlighted in this perspective as in the personality/intrapsychic models. However, the compulsive model seems to disregard the unique contribution of the various types of possible addictive behaviors. The excessive model, on the other hand, seems similar to a social learning perspective. Although it highlights the appetitive nature of the activities as a central dimension, the excessive model does not specify this appetitive process and how it can explain or underlie all addictions and, at the same time, predict unique addictions. Both compulsive and excessive behavior models appear to add a new twist to some previously described ones, adding some explanatory potential.

A Biopsychosocial Model

Discontent with the partial explanations offered by the previously described models spurred thoughtful individuals to propose an integration of these explanations (Donovan & Marlatt, 1988; Glantz & Pickens, 1992). They highlight the integration of biological, psychological, and sociological explanations by calling their model biopsychosocial (Buchman, Skinner, & Iles, 2010). This model proposes that addiction is best understood as the result of a confluence of factors representing these three broad areas of influence and that it encompasses process addictions like sex addiction (Hall, 2011; Samenow, 2010).

Donovan and Marlatt (1988) argue for the biopsychosocial model, stating that “addiction appears to be an interactive product of social learning in a situation involving physiological events as they are interpreted, labeled, and given meaning by the individual” (p. 7). The common features among addictions and the inadequacy of any single factor to explain addiction highlight the need for a more complex, multicomponent model across addictions. Thus multiple causes, systems, and levels of analyses are needed to understand the addiction process (Donovan & Chaney, 1985; Galizio & Maisto, 1985; Leonard & Blane, 1999; Volkow et al., 2016). The biopsychosocial model argues for this multiple causality in the acquisition, maintenance, and cessation of addictive behaviors. Proponents of this model often use the commonalties in the relapse process as an argument in support of it (Brownell, Marlatt, Lichtenstein, & Wilson, 1986; Davies, Elison, Ward, & Laudet, 2015; Marlatt & Gordon, 1985).

Although the proposal of an integrative model represents an important advance over the more specific, single-factor models, proponents of the biopsychosocial approach have not explained how the integration of biological, psychological, sociological, and behavioral components occur. This model does allow researchers from different traditions to agree on complexity and to use a common term. Most of the current models that explain the development of substance abuse problems emphasize risk and protective factors, identify factors from several biopsychosocial domains, and highlight an interaction of these risk and protective factors (Chassin et al., 1996; Hummel, Shelton, Heron, Moore, & Bree, 2013; Sanjuan & Langenbucher, 1999; Schulenberg, Maggs, Steinman, & Zucker, 2001; Windle & Davies, 1999). However, without a pathway that can lead to real integration, the biopsychosocial model represents only a semantic linking of terms or, at best, a partial integration. As such, it often allows individuals to use an integrative term while paying only lip service to aspects other than their primary area of interest. Biologically and physiologically oriented researchers talk about

the *biopsychosocial* model, whereas social influence advocates discuss the *biopsychosocial* model, and so on. This appears particularly true when the model is used for prevention or treatment considerations. It is difficult to intervene in multiple areas at the same time, and many of the risk and protective factors are not amenable to change (family of origin, geographic location, parental absence). Often the clinician or researcher's primary interest area is highlighted, with inadequate attention given to other aspects. The biopsychosocial model clearly supports the complexity and interactive nature of the process of addiction and recovery. However, additional integrating elements are needed to make this tripartite collection of factors truly functional for explaining how individuals become addicted and how the process of recovery from addiction occurs.

CHANGE: THE INTEGRATING PRINCIPLE

This brief review of the most prevalent models of addiction and related research demonstrates several important facts. First, addiction seems to involve multiple determinants that represent very different domains of human functioning, reaching from elements deep inside the individual, like self-esteem and neurobiology, to broad-based societal influences. Second, the search for a single explanatory construct at a single point in an individual's life appears fruitless. Risk and protective factors differ with age of initiation and developmental tasks (Conrod & Nikolau, 2016). Moreover, use and misuse affect biology, social interactions, and genetic influences (McGue & Irons, 2013). Finally, integrative perspectives such as the biopsychosocial model are beginning to dominate clinical and research discussions of addiction. Unlike current iterations of the biopsychosocial model, however, a truly integrative framework should provide the glue to join the various research-supported explanatory models. Moreover, such a perspective should lead to a comprehensive view of addiction that could orchestrate the integration of the multiple determinants.

The diverse etiological perspectives for understanding addiction discussed above offer partial, often one-dimensional views of the problem of addiction. The social/environmental model envisions addiction arising mostly as a reflection of the type of social environment (poverty, lack of education and opportunity, etc.) surrounding the individual who becomes addicted or highlights the influence of labeling and other social phenomena. The genetic/physiological model searches for answers in the physiological and neurobiological dimension. The personality/intrapsychic model views addiction as a failure of character and will. The coping/social learning model sees addiction as a function of personal

coping behavior and the influence of role models, peers, and parents. Conditioning/reinforcement models search the environment for the cues and reinforcers that create an addiction. There are clear case examples that would support one or another of these elements as a critical aspect or causal influence in addiction or recovery (Fletcher, 2001; Wholey, 1984). However, it bears repeating that no single source of influence has been found that can explain any single addiction, let alone all the various types of addictions (Glantz & Pickens, 1992). There is also no single developmental model or singular historical path that can explain acquisition of and recovery from addictions (Chassin, Presson, Sherman, & Edwards, 1991; Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995; Schulenberg et al., 2001).

The Transtheoretical Model (TTM) of intentional behavior change attempts to bring together divergent perspectives by focusing on how individuals change behavior and by identifying key change dimensions involved in this process (DiClemente & Prochaska, 1998; Prochaska & DiClemente, 1984). It is the personal pathway, and not simply the type of person or environment, that appears to be the best way to integrate and understand the multiple influences involved in acquiring and ceasing addictions (DiClemente, 2007; DiClemente, Delahanty, & Fiedler, 2010). Beginning and quitting addictive behaviors involve the individual and his or her unique decisional considerations. A person's choices influence and are influenced by both character and social forces. There is an interaction between the individual and the risk and protective factors that influence whether the individual becomes addicted and whether he or she leaves the addiction. The transitions into and out of addictions do not occur without the participation of the addicted individual—the individual is involved in how these influences are processed and whether their impact will be strong enough to overcome contrary values and become incorporated into his or her value system. Developing an addictive behavior and recovery from addiction both require a personal journey through an intentional change process that is influenced at various points by the host of factors identified in the etiological models just reviewed.

As often occurs, conflicting models are best resolved with a “both—and” answer instead of an “either—or” type of question. The stages of change, processes of change, context of change, and markers of change identified in the TTM offer a way to integrate these diverse perspectives without losing the valid insights gained from each perspective. This is the essence of an integrative, transtheoretical perspective. The TTM of intentional human behavior change (DiClemente, 2005, 2006; DiClemente & Prochaska, 1998; Prochaska & DiClemente, 1984; Prochaska, DiClemente, & Norcross, 1992) will be the integrating framework offered in this book.

Using the process of intentional human behavior change as the

integrating construct has many additional advantages. First, implicit in the concept of human behavior change is a developmental perspective. Change in humans takes place over time, at different points in the life cycle, and most often involves a sequence of events. Addiction and recovery occur in the context of human development and of an individual's life space, which include both physiological and psychological events and transitions (Deas, Riggs, Langenbucher, Goldman, & Brown, 2000; Jessor et al., 1995; Kandel & Davies, 1992; Keyes, Iacono, & McGue, 2007; McGue & Irons, 2013). In fact, the current developmental perspective on addiction is completely consistent with a process of change view on addictions. Schulenberg and colleagues (2001) characterize a developmental-contextual framework as one that "emphasizes multidimensional and multidirectional development across the life span, with stability and change occurring as a function of the dynamic interaction between individuals and their contexts" (p. 22). Furthermore, a change-process perspective avoids static explanations for what appears to be a rather active process. Addiction and recovery are dynamic in nature, include periods of perturbation and disruption as well as of stability, and are vulnerable to acceleration and deceleration. Finally, placing addiction into the larger context of an intentional, human change process can increase our ability to identify and explore similarities across addictive behaviors and allows us to compare modifying addictive behaviors with modifying other health and mental health behaviors.

The recent shift from a symptoms-based view of recovery to a more holistic and comprehensive one also supports an individual process of change perspective. The field is moving from a view of someone as "in remission" if they are abstinent with an absence of symptoms to one that views recovery in terms of wellness and quality of life. Recently the Center for Substance Abuse Treatment defined recovery as a process of change: "Recovery from alcohol and drug problems is a process of change through which an individual achieves abstinence and improved health, wellness, and quality of life" (Sheedy & Whitter, 2009, p. 1).

In the next chapter I examine in greater depth the process of human intentional behavior change and the core dimensions of the TTM. The model has been labeled "Transtheoretical" (across theories) because, from its inception more than 30 years ago, key elements used in creating the model were derived from different theories of human behavior and diverse views of how people change (Prochaska & DiClemente, 1984). Thus the model is an eclectic and integrative one that owes a debt of gratitude to many theory builders and researchers in the behavioral sciences past and present. In the following chapters I describe how this theoretical framework can be used to better understand the process involved both in the creation of an addiction and in the recovery from addiction.

CHAPTER 2



The Process of Human Intentional Behavior Change

The TTM offers an integrative framework for understanding and intervening with human intentional behavior change.

HISTORY AND OVERVIEW OF THE TTM

The TTM emerged out of the perceived need to find an integrative framework that could bring together fragmented approaches to treating problematic behaviors. Many competing theories of therapy were being used (Bandura, 1986; Freud, 1949; Lambert, 2013; Rogers, 1954; Skinner, 1953). Like the models of addiction reviewed in Chapter 1, treatments based on these theories presented a patchwork of diverse views concerning how people change (Prochaska & Norcross, 2013). The initial elements of the model came from an analysis of these theories of therapy and highlighted potential common processes that could be identified across the various perspectives (Prochaska, 1979; Prochaska & DiClemente, 1984, 1986). The model took shape in early experimental investigations into how nicotine-addicted smokers were able to quit smoking (DiClemente, 1978; DiClemente & Prochaska, 1982; Prochaska & DiClemente, 1982, 1983, 1984). What began as an attempt to integrate treatment approaches, however, soon turned into a broader exploration of intentional behavior change with a focus on how people change addictive behaviors (Prochaska & DiClemente, 1983, 1986, 1992; Prochaska et al., 1992; Prochaska, Norcross, & DiClemente, 1994).

Most early research on the TTM consisted of naturalistic studies that simply followed individuals who were at different points in the process of quitting smoking to see how they did it and whether there were ways to track that process (DiClemente & Prochaska, 1985; Prochaska & DiClemente, 1986). Results of these early studies supported segmenting the process of change into different steps or stages (DiClemente et al., 1991; Prochaska & DiClemente, 1984). We also discovered interesting connections between these stages and the activities and experiences of individuals moving through the different stages (Prochaska, DiClemente, Velicer, Ginpil, & Norcross, 1985; Prochaska, Velicer, DiClemente, Guadagnoli, & Rossi, 1991). The common processes that we identified differed significantly as individuals moved through the stages of change (DiClemente & Prochaska, 1998; Prochaska & DiClemente, 1986). When we studied individuals who quit the addiction on their own and compared them with those who sought treatment for help in quitting, a similar process and path of change emerged (DiClemente et al., 1991; Prochaska et al., 1992). In addition, data from our research group and those of colleagues indicated that the same stages and processes of change could be assessed across various addictive and health behaviors (DiClemente & Prochaska, 1998; Prochaska & DiClemente, 1985; Prochaska, Velicer, et al., 1994).

As the research progressed and expanded, it became evident that this process of change is a generic one. There is a common pathway involved whenever an individual moves through an intentional change process (DiClemente, 2006; DiClemente & Prochaska, 1998; Horn, 1976). Research studies have demonstrated that the various elements of this change process as described in the TTM are important for all three types or patterns of behavior change: (1) *creating new patterns of behavior*, whether healthy or risky, like exercising regularly, drinking alcohol, and smoking cigarettes (DiClemente, Ferentz, & Velasquez, 2004; Kohler, Grimley, & Reynolds, 1999; Marcus, Rossi, Selby, Niaura, & Abrams, 1992; Pallonen, Prochaska, Velicer, Prokhorov, & Smith, 1998; Werch & DiClemente, 1994); (2) *modifying habitual behavior patterns* like changing to a low-fat diet, eating more fruits and vegetables, or engaging in protective sexual behaviors (Curry, Kristal, & Bowen, 1992; DiClemente, Delahanty, Havas, & Van Orden, 2015; Feldman et al., 2000; Glanz et al., 1994; Grimley, Riley, Bellis, & Prochaska, 1993); and (3) *stopping problematic patterns* of smoking, drinking, drug use, gambling, or other addictions (Connors, DiClemente, Velasquez, & Donovan, 2013; DiClemente, 2005, 2006; DiClemente et al., 2010; Isenhardt, 1994; Prochaska et al., 1992; Project MATCH Research Group, 1997a; Shaffer, 1992). Although the challenges differ in creating, modifying,

or stopping a behavioral pattern, the process appears to be remarkably similar (Norcross, Krebs, & Prochaska, 2011).

The dimensions of change identified in the TTM can be used to describe this similar path that leads into and out of the habitual patterns of behavior called addictions. The model consists of four broad dimensions of change and their interactions (see Table 2.1). These four dimensions are the stages, processes, markers, and context of change. The *stages of change* divide the process of change into distinct segments. Each stage is defined by an individual's stance regarding a particular change and by specific "tasks" that need to be accomplished to a greater or lesser degree if movement forward to the next stage is to happen. The stages depict a person's movement through the process of change in terms of the motivational, temporal, and coping elements needed to create a successfully sustained pattern of behavior. The *processes of change* represent the internal and external experiences and activities that enable a person to move from one stage to the next. Engaging in these processes provides the means for the individuals to accomplish the stage "tasks." Thus the processes create and sustain movement through the stages. The *markers of change* are signposts that identify where a person stands in two key change-related areas: decision making about the change, which is called the *decisional balance*, and the strength of one's perceived ability to manage the behavioral change measured by the *self-efficacy/temptation* status. The *context of change* acknowledges that any specific behavior change happens within the life context of the individual that surrounds the change process and often interacts with it. The context consists of five broad areas of functioning (symptom/situational, beliefs, interpersonal, systemic, and intrapersonal) that represent both the internal workings of the individual and important interactions with environmental influences. Issues, problems, resources, and liabilities within these areas can help or hinder movement through the process of change.

Each of these dimensions holds some explanatory potential for understanding the process of change. Changing a single behavior, like smoking, drinking, heroin use, sex, or gambling, is a complex activity. It takes time and energy to work through the various tasks of change and to move the markers of change in the desired direction. Various events and issues occurring in the context of change often influence completion of tasks and progress toward change. Although each dimension is interesting and informative, the interaction of these dimensions holds the key to understanding and exploring the process of intentional behavior change. Processes of change seem to make sense only in the framework of the stages. In fact, this was the initial insight underlying the creation

TABLE 2.1. The Four Dimensions of the Transtheoretical Model of Intentional Behavior Change

<u>Stages of change</u>	
Precontemplation—Contemplation—Preparation—Action—Maintenance	
<u>Processes of change</u>	
<u>Cognitive/experiential</u>	<u>Behavioral</u>
Consciousness raising	Self-liberation
Self-reevaluation	Conditioning/counterconditioning
Environmental reevaluation	Stimulus generalization/control
Emotional arousal/dramatic relief	Reinforcement management
Social liberation	Helping relationships
<u>Markers of change</u>	
Decisional balance	Self-efficacy/temptation
<u>Context of change</u>	
Areas of functioning that complement or complicate change.	
1. Current life situation	
2. Beliefs and attitudes	
3. Interpersonal relationships	
4. Social systems	
5. Enduring personal characteristics	

of the TTM (DiClemente & Prochaska, 1982; Prochaska & DiClemente, 1982). Markers are related to specific processes of change and appear differentially important at different stages of change. Accomplishing stage tasks, engaging in appropriate processes of change, and shifting markers toward change are all affected by the unique constellation of contextual factors.

STAGES OF CHANGE

The end state of an addiction is a well-established way of behaving that is consistent, stable, and resistant to change (see Chapter 1). Change or recovery from an addiction requires dissolution of this established pattern and involves a shake-up or perturbation of the status quo for some time until a new pattern can be established that replaces the old. Then, once again, there is a period of stability until change is again needed or wanted.

Patterns of behavior are not usually created, modified, or stopped in a single moment in time or with a single flick of a switch.¹ There are steps or segments to the process that the TTM labels *stages of change*. These stages depict the motivational and dynamic fluctuations of the process of change over time. Each stage represents specific tasks that must be completed adequately and goals that need to be achieved if the individual is to move forward from one stage to the next (Table 2.2).

The road that leads individuals to change an established behavior pattern begins in the Precontemplation stage, where they have no current interest in change. A person moves through the Contemplation, Preparation, and Action stages before arriving at the Maintenance stage. Maintenance becomes the final stage in the transition to the new pattern of behavior and ultimately can lead to the termination of the change process. The stages of Precontemplation and Maintenance represent periods of greater stability, whereas the stages of Contemplation, Preparation, and Action represent greater transition and instability. However, even in these more dynamic stages, individuals can get stuck and spend significant periods of time before accomplishing the tasks of that stage sufficiently to move forward. Moreover, they can regress as well as progress through the stages. The following sections describe each stage in an ideal linear sequence. Nonetheless, movement through the stages is most often recursive, with individuals moving back and forth through the early stages, and re-cycling through the stages after a failed attempt to change. Although in theory there is a logical, linear sequence through these stages of change, the actual path is often circuitous (DiClemente, 2005; Prochaska et al., 1992).

Precontemplation Stage

Precontemplation represents a status quo. An individual in the Precontemplation stage is satisfied with, or at least unwilling to disrupt, a current behavior pattern. Individuals in Precontemplation are not considering

¹See Miller and C'deBaca (2001) for a discussion of a process they call *quantum change*, which they view as different from movement through the stages. It is not clear, however, that this represents a completely different process of change. They identify a type of insight change that seems to be related to accelerated decision making and a behavior change process that encompasses multiple problems, similar to a conversion, which may be simply a dramatic, accelerated movement through the process of change. This continues to be an interesting area for research. In any case, the accounts of individuals interviewed for this book often indicate that the "quantum change" may not represent a completely intentional behavior change process because it can involve the intervention of a higher power or a force seen as external to the individual.

TABLE 2.2. Tasks and Goals for Each of the Stages of Change

<p>Precontemplation</p> <p>The state in which there is little or no consideration of change of the current pattern of behavior in the foreseeable future.</p> <p><i>Tasks:</i> Increase awareness of need for change; increase concern about the current pattern of behavior; envision possibility of change.</p> <p><i>Goal:</i> Serious consideration of change for this behavior.</p>
<p>Contemplation</p> <p>The stage wherein the individual examines the current pattern of behavior and the potential for change in a risk—reward analysis.</p> <p><i>Tasks:</i> Analysis of the pros and cons of the <i>current behavior</i> pattern and of the costs and benefits of <i>change</i> to a new behavior. Decision making.</p> <p><i>Goal:</i> A considered evaluation that leads to a decision to change.</p>
<p>Preparation</p> <p>The stage in which the individual commits to take action to change the behavior pattern and develops a plan and strategy for change.</p> <p><i>Tasks:</i> Increasing commitment and creating an acceptable, accessible, and effective change plan.</p> <p><i>Goal:</i> An action plan that can be implemented in the near term.</p>
<p>Action</p> <p>The stage in which the individual implements the plan and takes steps to change the current behavior pattern and/or to begin creating a new behavior pattern.</p> <p><i>Tasks:</i> Implementing strategies for change; revising plan as needed; sustaining commitment in face of difficulties.</p> <p><i>Goal:</i> Successful action for changing current pattern. A new pattern of behavior established for a significant period of time (3–6 months).</p>
<p>Maintenance</p> <p>The stage wherein the new behavior pattern is sustained for an extended period and is consolidated into the individual’s lifestyle.</p> <p><i>Tasks:</i> Sustaining change across a wide range of different situations. Integrating the behavior into the person’s lifestyle. Avoiding slips and relapse back to the old pattern of behavior.</p> <p><i>Goal:</i> Long-term change of the old pattern and establishing a new pattern of behavior.</p>

change in the foreseeable future, often defined as a period of the next 6 months to a year. This applies whether change means adopting, modifying, or stopping a behavior. Change in this stage is irrelevant, unwanted, not needed, or impossible to achieve (DiClemente, 1991; DiClemente & Velasquez, 2002). It matters little if the current behavior pattern involves cigarette smoking, eating a high-fat diet, physical inactivity, using illegal

drugs, or abstaining from sexual activity. As long as the current pattern of behavior seems functional for the individual or no compelling reason arises to disrupt this pattern, an individual can remain in Precontemplation for extended periods of time, even a lifetime. However, over the course of a lifetime, social pressure, aging, illness, personal concerns, human development, shifts in values, and other types of influences move us to consider change for some of our behavior patterns. This shift in concern about the behavior and in awareness of some reasons for change spurs consideration of change and movement to the next stage. The task for individuals in Precontemplation is to become conscious of and concerned about the current pattern of behavior and/or interested in a new behavior. From a change perspective, it is more important to recognize an individual's current views on change and address her or his reasons for not wanting to change than it is to understand how the status quo came to be.

Contemplation Stage

Consideration of the value and need for change represents movement into the Contemplation stage. With this, the individual enters a period of instability. Consideration of change entails struggling with ambivalence about leaving one behavior pattern and moving to another (Miller & Rollnick, 2013). Although behavior change does not always appear to be a rational or logical process, people usually need a compelling rationale or a least a risk–reward analysis to leave the status quo. The Contemplation stage involves a process of evaluating the pros and cons of both the current behavior pattern and the potential new behavior pattern. This evaluation involves generating rational considerations, an emotional weighing of each consideration, and connecting each consideration with important personal and cultural values that may be explicit or implicit. If change is to move forward, the evaluation process results in a decisional balance that supports change (Janis & Mann, 1977). Human behavior change requires significant effort. It takes time and energy to practice a new pattern of behavior to make it firmly established. The reasons in favor of change need to be important and substantive enough to move the individual into deciding to make the effort to change. The task for individuals in Contemplation is to resolve their decisional balance considerations in favor of change. The decision to change marks the transition out of the Contemplation stage and into Preparation.

Preparation Stage

The Preparation stage of change entails developing a plan of action and creating the commitment needed to implement that plan. Decisions do not

translate automatically into action. To change a behavior, one needs to focus attention and energy on breaking the old pattern and creating a new one. Planning is the activity that organizes the environment and develops the strategies for making change. Commitment is essentially a matter of finding the time and energy to implement the plan. One of the most frequent reasons why individuals do not change is that they lacked the time and energy to do it. But it would be difficult to implement and sustain any change plan without a firm choice and sustained commitment. Being prepared to act requires a plan of action and the dedication or commitment to follow through on that plan. It can be simple or more complex, but there needs to be an implementation strategy to make the behavior change happen. For the Preparation stage, individuals must summon the courage, commitment, and competencies to accomplish the change.

Action Stage

The implementation of the plan—acting to stop the old pattern of behavior and beginning to engage in the new one—represents the Action stage of change. Most people equate this one stage with change. It represents a clear, visible shift from the first half of the change process that focused on intentions, considerations, and plans to the second half of the process, actual behavior change. Getting off the couch and beginning a regimen of jogging, or throwing out the cigarettes and going through nicotine withdrawal represent activities consonant with the Action stage. It is the initial behavioral step on the path to creating a new pattern of behavior.

However, the new behavior must be sustained to create the new habit. A behavior cannot simply be carried out several times and automatically become established. The old pattern retains its attraction, and initially, returning to it is easier than sustaining a new pattern. It takes a long time to create a new, established pattern of behavior. Three to 6 months is usually the time frame we have used for duration of the Action stage. This period seems adequate for creating, modifying, or quitting behaviors that have a high frequency of occurrence, like starting regular physical activity or quitting cigarette smoking. The Action stage may take longer for less frequent patterns of behavior, like stopping infrequent binge drinking, or beginning monthly breast self-exams or annual colorectal cancer screening (Rakowski, Ehrich, Dube, & Pearlman, 1997). The tasks for individuals in Action are to begin employing effective strategies that they continue in the face of barriers and challenges. This task requires that individuals check the adequacy of the plan and revise it as needed to overcome these difficulties. Once the individual establishes the new behavior pattern, however, the task of behavior change shifts to one of continuing the change over the long haul.

Maintenance Stage

To become habitual, the new behavior must become integrated into the individual's lifestyle. This is the task of the Maintenance stage of change. During this stage, the new behavior pattern becomes automatic, requiring less thought or effort to sustain it. It truly becomes an established, habitual pattern (Brownell et al., 1986). However, even during Maintenance there is an ever-present danger of reverting to the old pattern. In fact, the new behavior becomes fully maintained only when there is little or no energy or effort needed to continue it and the individual can terminate the cycle of change (DiClemente 2005, 2015; DiClemente, Schlundt, & Gemmell, 2004; Prochaska, Norcross, et al., 1994). The new behavior then becomes the status quo, and once again there is little or no desire or intention to change, whether that be going back to the former pattern or moving to a new pattern. The task for Maintainers is to sustain and integrate the specific behavior change into the total life context so that it becomes normative, familiar, and recurrent. This new sustained pattern of behavior, then, signals another period of stability.

Change: A Multidimensional, Nonlinear Process

This sequence of stages identifies the critical tasks that an individual needs to accomplish in moving from one behavior pattern to another (Table 2.2). Movement through these stages represents successful change. However, as suggested earlier, successful *linear* movement through the stages in a short period appears to be the exception, not the norm (Prochaska et al., 1992). Individuals who enter the instability of Contemplation, Preparation, and Action can stay in a single stage, like Contemplation, for a long time (Carbonari, DiClemente, & Sewell, 1999). At times, they can move backward as well as forward through the early stages. Some move into Preparation and develop a plan, but fail to initiate the plan effectively. Many take action but fail to sustain the behavior change and return to an earlier stage in the process. Movement through the stages of change is more cyclical, circuitous, and chaotic than the linear description presented here (see Figure 2.1). Because it is filled with progression, regression, and re-cycling, successful movement instead is often pictured as a spiral.

Some critics have questioned whether the stages represent distinct states, separate categories, or “real” stages (Bandura, 1997; Joseph, Breslin, & Skinner, 1999). These authors believe that the term *stages* should be reserved for states that are completely distinct, with an irreversible linear sequence (caterpillars become butterflies, but butterflies

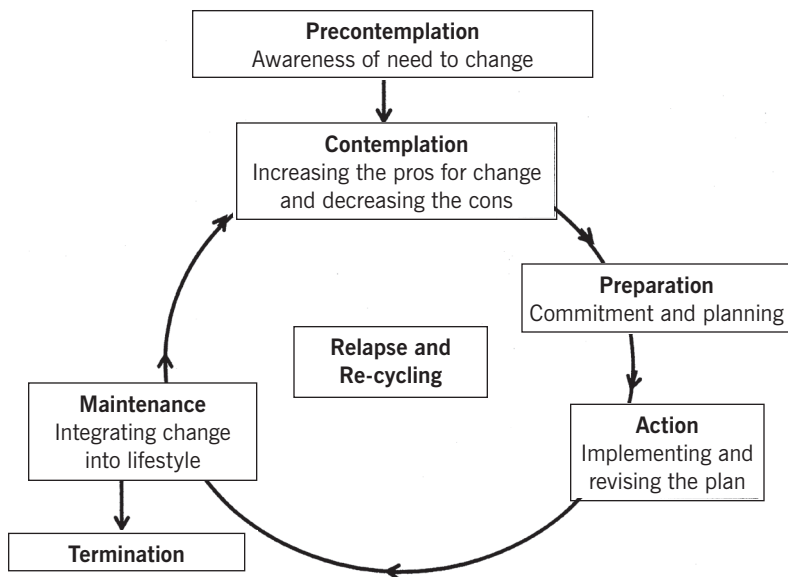


FIGURE 2.1. A cyclical representation of movement through the stages of change.

never become caterpillars), and that can be completely isolated. The stages described in this model do not meet all these criteria. As illustrated, the stages can be recursive (Carbonari et al., 1999; Connors, Donovan, & DiClemente, 2001; Prochaska & DiClemente, 1998) and should be viewed in a dynamic perspective as changeable states, and not as stable traits. Accomplishment of stage tasks are the ingredients that need to be added to the overall process recipe to create successful change.

In addition, it is sometimes difficult to classify an individual into one of these stages accurately (Carey, Purnine, Maisto, & Carey, 1999; Littell & Girvin, 2002; Sutton, 1996, 2001). Capturing the individual in the process of completing the tasks of each stage can be difficult because the tasks are not always completed and individuals can move back and forth through the stages. All measurement of the stages approximates where an individual is in the process of change. It is particularly difficult to isolate the early stages, where there is no clear behavioral marker or period that can be used to define the stage. Moreover, in situations involving illegal drug use, there may be reason for the individual to deceive. However, when there is no such reason, a straightforward assessment of the individual's status appears to work well to divide individuals into

subgroups that are consistent with other dimensions of change (Connors et al., 2013; DiClemente & Prochaska, 1998; Velasquez, Crouch, Stephens, & DiClemente, 2015). The research indicates that activities and experiences shift over time as individuals move through the change process. Measurement difficulties exist, but there continues to be great value in the concept of the stages and in dividing the process of change into meaningful segments to better understand the process of change (Connors et al., 2013; DiClemente, 2005; Prochaska & DiClemente, 1984, 1992, 1998; Prochaska et al., 1992).

The stages of change delineate important tasks that need to be accomplished in order to move the process of change forward. However, each of these tasks can be accomplished to a greater or lesser degree. An individual may feel pushed out of Precontemplation and engage in a cursory consideration of change. Another may want to change but fail to make a firm decision based on a solid risk–reward analysis. Success represents a resolution of each stage’s tasks in a way that supports engagement in the tasks of the next stage, and so on. Movement back and forth as well as re-cycling through the stages represents a successive learning process whereby the individual continues to redo the tasks of various stages in order to get them right.

Described in this manner, the stages of change seem most like the stages of development described by Erik Erikson (1963). Erikson viewed the psychological growth and maturation of an individual as a series of bipolar tasks (trust vs. mistrust; industry vs. inferiority) that build on one another, that become important at different points in maturational development, and that can be more or less successfully resolved as the individual moves through life. How one resolves early-stage issues affects how successfully the individual will be able to address the later-stage tasks. Similarly, the tasks of each stage of change involve activities and issues related to initial motivation, decision making, efficacy, and coping activities that have an ongoing influence on the change process. These tasks can be accomplished quickly or slowly, and can be performed more or less completely. From this perspective, the quality and completeness of the execution of the stage-specific tasks would affect success in the subsequent stages.²

How does one move through the stages of change? Each stage has important tasks that need to be accomplished at least to some degree before there is movement into the next stage. Inadequate completion of the tasks can lead to impulsive, short-term, problematic attempts at change. The more specific question is how well individuals accomplish the tasks of each stage to move from one to the next.

²See the final chapter of Connors et al. (2013) for a discussion of this issue.

PROCESSES OF CHANGE

Processes of change represent the internal and external experiences and activities that enable individuals to move from stage to stage. The processes are the engines or mechanisms that create and sustain the transitions through the stages and facilitate successful completion of the stage tasks (DiClemente, 2007). The processes of change are the responsibility of the individual making the change and initiating, modifying, or stopping the behavior. There is an important distinction between the processes of change and the techniques of prevention, counseling, or therapy that intervention and treatment specialists learn. It is the consciousness raising of the client, for example, and not the techniques of the therapist that represent a process of change. The techniques counselors employ are intended to engage or empower individual processes of change in the client (DiClemente, 2005; Velasquez et al., 2015). However, counselors can perform powerful techniques in treatment without successfully engaging the client in the specific processes of change targeted by that technique. Prevention and treatment techniques are not to be confused with processes of change. These processes of change have been identified in individuals who make substantive changes with or without the assistance of formal treatment or with minimal self-help approaches (Carbonari & DiClemente, 2000; Crouch, DiClemente, & Pitts, 2015; DiClemente, 2007; DiClemente et al., 1991; Heather, Hönekopp, & Smailes, 2009; Prochaska & DiClemente, 1986; Snow, Prochaska, & Rossi, 1994). Clearly, the entire process of intentional behavior change is more extensive and more comprehensive than any single intervention, treatment event, or course of therapy.

Although we do not have a complete understanding of all the activities and experiences involved in moving between stages of change, we have identified a number of important ones (DiClemente & Prochaska, 1998; Prochaska & DiClemente, 1986; Prochaska, Velicer, DiClemente, & Fava, 1988). These processes are the same as behavior change principles identified by different theories of change and systems of psychotherapy (Prochaska & Norcross, 2013).³ There are two broad types of processes involved in intentional behavior change (Table 2.3).⁴ One type

³There is a detailed description of how these principles are related to therapy theories and approaches in Prochaska and DiClemente (1984), DiClemente and Prochaska (1998), and Prochaska and Norcross (2013).

⁴These two larger groupings are second-order factors identified in factor analyses of the 10 specific processes of change in studies of smoking, weight control, psychological distress, and drinking (Carbonari & DiClemente, 2000; Prochaska & DiClemente, 1985; Prochaska et al., 1988; Snow et al., 1994). Individual processes as well as the larger second-order factors have been used in various studies to evaluate change and stage movement.

TABLE 2.3. Processes of Change

Cognitive/experiential

1. *Consciousness raising*: Gaining information that increases awareness about the current behavior pattern or the potential new behavior.
2. *Emotional arousal*: Experiencing emotional reactions about the status quo and/or the new behavior (sometimes called dramatic relief).
3. *Self-reevaluation*: Seeing and evaluating how the status quo or the new behavior fits in with or conflicts with personal values, self-concept, or personal norms.
4. *Environmental reevaluation*: Recognizing the positive and negative effects the status quo or new behavior can have upon others and the environment.
5. *Social liberation*: Noticing social norms and increasing social alternatives that help support the status quo and/or initiation of the new behavior.

Behavioral

1. *Self-liberation*: Making choices, taking responsibility for, and committing to engaging in a new behavior or a behavior change.
 2. *Stimulus generalization or control*: Creating, altering, or avoiding cues/stimuli that trigger or encourage a particular behavior.
 3. *Conditioning or counterconditioning*: Making new connections between cues and a behavior or substituting new, competing behaviors and activities in response to cues for the “old” behaviors.
 4. *Reinforcement management*: Identifying and manipulating the positive and negative reinforcers for current or new behaviors. Creating rewards for new behaviors while extinguishing (eliminating reinforcements) for current behavior.
 5. *Helping relationships*: Seeking and receiving support from others (family, friends, peers) specifically for current or new behaviors.
-

represents those cognitive and experiential processes involving thinking and feeling. The second type involves action-oriented processes; they involve behavioral commitment and actions to create or break a habit. These processes operate in similar ways but may differ in emphasis or direction for the various types of behavior change: initiation, modification, and cessation.

The cognitive/experiential processes of change are ways of thinking and feeling that create change. These include consciousness raising, emotional arousal, self-reevaluation, environmental reevaluation, and social liberation. In their application, they are focused on the specific behavior that is the focus of change. Thus the process of consciousness raising increases awareness about the current or the new behavior, or about a need to change related to the target behavior. Consciousness raising has been highlighted by most behavior change theories as a fundamental process and is a prime target for most prevention and treatment programs. The process of emotional arousal involves emotional and value-laden experiences with the new or old behavior.

These emotionally arousing experiences can either enhance the value of the current or new behavior or decrease the value or need for these behaviors. Emotional experiences interact with and contribute to the consciousness raising and the reevaluation processes. Several emotion-based theories of change, like the existential and Gestalt therapies, and techniques like psychodrama consider emotional arousal to play a pivotal role in change.

Cognitive/experiential processes also include self-reevaluation, whereby one reassesses the current or new behavior. This process involves consideration of how the behavior fits with current or aspirational values, beliefs, and goals. Many theories of change, particularly those that focus on cognitive factors, see this type of self-reevaluation as critical to successful behavior change (Beck, Wright, Newman, & Liese, 1993; Ellis & Dryden, 1987). The environmental reevaluation process assesses the utility of the behavior in the current environment. Theories of change that emphasize role expectancies, perceived norms, and social influence focus on environmental reevaluation (Bandura, 1997; Goldman, 1999; Goldman et al., 1999; Rogers, 1995). Finally, an awareness of societal values and society's promotion or proscription of a target behavior also play a part in the thinking and feeling processes. This social liberation process promotes realization and acceptance of social norms and societal sanctions, and helps the individual to view change as possible and to experience viable alternatives. Programs attempt to engage social liberation when they encourage advocacy to make individuals aware of norms (Mothers Against Drunk Driving), offer successful or unsuccessful models to promote change (Alcoholics Anonymous or juvenile offender visits to prisons), or create alternative activities like alcohol-free parties.

Behavioral processes of change include self-liberation, stimulus generalization or control, conditioning or counterconditioning, reinforcement management, and helping relationships. Self-liberation involves making a choice and commitment to modify current behavior patterns and to engage in the new behavior. Humanistic and existential approaches to change have championed self-liberation as a process of change and emphasized the responsibility and personal choices involved in creating change. Two behavioral processes focus on creating and modifying the connections between cues and stimuli in the environment and specific behaviors. Wolpe (1958) describes the processes of stimulus generalization or stimulus control and conditioning/counterconditioning. Changing connections between stimulus and response can be achieved either by increasing (stimulus generalization) or decreasing (stimulus control) the number and nature of the stimuli connected with the specific behavior, or substituting one behavioral response to a stimulus for another

(conditioning or counterconditioning). Another behavioral process, reinforcement management, involves understanding, creating, or changing the environmental contingencies that reinforce a behavior pattern as described by Skinner (1953). This reinforcement management process investigates and utilizes the powerful rewards and reinforcements for a behavior that can be biological, psychological, and/or social. Finally, the helping relationships process represents having and seeking support from others for the current or new behavior. Helping relationships and social support have often been viewed as playing an important role in change by various theorists and researchers (Miller & Rollnick, 2013; Norcross, 2013; Rogers, 1954; Sarason, Sarason, & Pierce, 1990). Having or creating a support system for engagement in a behavior seems to be an important element in initiation, modification, or cessation of behaviors.

These cognitive/experiential and behavioral processes of change are critical mechanisms for creating movement through the stages of change (DiClemente, 2007; DiClemente & Prochaska, 1985; Prochaska & DiClemente, 1985). This range of processes derived from various theories is what makes the TTM *transtheoretical*. In addition, there are predictable interactions between types of process activity and successful movement through specific parts of the stages of change sequence. Cognitive and experiential processes are more important in negotiating passage through the earlier stages of Precontemplation and Contemplation. Behavioral processes of change are more important in the Preparation, Action, and Maintenance stages of change (DiClemente & Prochaska, 1998; Velasquez et al., 2015). As we continue to learn about the process of human behavior change, it appears that change-process activity matched to movement through the stages produces more successful change (Carbonari & DiClemente, 2000; Heather et al., 2009; Perz, DiClemente, & Carbonari, 1996). The secret to successful human intentional behavior change appears to be doing the right thing (specific process activities) at the right time (specific stages) in the process.

MARKERS OF CHANGE

From the beginning of this exploration into the process of intentional behavior change, our research team looked for markers and mechanisms identified in other theories and perspectives that could help delineate the process (DiClemente, 1981; DiClemente & Prochaska, 1982; Prochaska & DiClemente, 1983, 1984). In addition to the stages and processes of change, two related constructs have been examined consistently in research using the TTM: decisional balance and self-efficacy/

temptation. Decisional balance identifies the relationship between the pros and cons for change (Janis & Mann, 1977) and has emerged as an important marker of movement through the early stages of change (Prochaska, Velicer, et al., 1994; Velicer, DiClemente, Prochaska, & Brandenburg, 1985). On the other hand, self-efficacy, Albert Bandura's concept describing an individual's confidence to perform a specific behavior, emerged as an important predictor of action and long-term success (Bandura, 1977, 1997; DiClemente, Carbonari, Montgomery, & Hughes, 1994; DiClemente et al., 1995; DiClemente, Carbonari, Daniels et al., 2001; DiClemente, Prochaska, & Gibertini, 1985; Shaw & DiClemente, 2016; Velicer, DiClemente, Rossi, & Prochaska, 1990). There are other potential markers and mechanisms that can interact with the process of human intentional behavior change, like intrinsic and extrinsic motivation (Curry, Wagner, & Grothaus, 1990; DiClemente, 1999a), rationalization and harm minimization (Daniels, 1998), implicit attitudes (Wiers, Gladwin, Hofmann, Salemink, & Ridderinkhof, 2013), and beliefs and barriers to change (Werch & DiClemente, 1994). However, I will focus, as has most of the research, on decision making and self-efficacy, which are considered important markers of movement through various stages in the process of change for addictions.

Decisional Balance

There is a sizable literature on decision-making theory (Mellers, Schwartz, & Cooke, 1998). The research and theory on decision making that is most connected to the TTM has its roots in the work of Irving Janis and Leon Mann. They propose a rational decision-making model that identifies the weighing of the pros and cons of change and the resultant decisional balance as important components in deciding to take an action (Janis & Mann, 1977). Through the early stages of change, an individual's decisional balance is an important marker of movement (Prochaska, Velicer, et al., 1994). These considerations involve not only rational considerations but also the importance, value, and utility of those considerations.

For any contemplated change, the current and the new behavior both have their own set of pros and cons. An individual's personal reasons for and against the current behavior and those for or against the new behavior result in an overall decisional balance. For example, in Precontemplation for recovery, if the personal reasons against abstinence and in favor of continued drinking have more importance or salience the pros of stopping and the cons of continued drinking, then the decisional balance is tipped in favor of the status quo. In Contemplation there is often a stabilizing overall balance between the positives and negatives

that results in ambivalence. If the individual is to continue moving forward, the pros for change and the cons for the status quo must increase. This shift in decisional considerations will tip the overall balance in favor of the change (Miller & Rollnick, 2013; Prochaska & DiClemente, 1986; Prochaska, Velicer, et al., 1994; Velicer et al., 1985). Decision making is the desired outcome of this “imbalancing” process and marks the transition between the Contemplation and Preparation stages. Thus, the pros and cons of change become important markers that can be used to evaluate an individual’s status regarding a behavior change and to explore the ambivalence that plays an important role in the change process. In the latter stages of Action and Maintenance, the decisional balance continues to favor and support change, but individuals often see the original factors involved as less important than they did earlier (Prochaska & DiClemente, 1986). The salience of decisional considerations for stopping problematic behaviors like smoking decrease as the change becomes established (Prochaska et al., 1991). However, these considerations may continue to play a significant role in the process of starting and modifying behaviors well into the Action and Maintenance stages (Lee, 1998).

Self-Efficacy

Self-efficacy describes an individual’s confidence about performing a specific behavior (Bandura, 1977, 1986, 1997). Bandura’s unique insight was to describe how efficacy expectations (“Can I do it?”) differ from outcome expectations (“What do I expect to happen after I perform the behavior?”). He highlighted the important role of efficacy self-evaluations in predicting performance of a behavior and identifying individuals who would or would not persist in performing that behavior (Bandura, 1997). Efficacy evaluations can represent an individual’s self-reported confidence to abstain from a problematic behavior as well as to perform a desired one. Self-efficacy has been studied extensively in the context of addictions because of its potential to discriminate those who may be vulnerable to relapse, thereby contributing to relapse prevention (Bandura, 1997; Brownell et al., 1986; DiClemente et al., 1995; Marlatt & Gordon, 1985). Research exploring the TTM often has examined the role of self-efficacy in predicting behavior change over the past 30 years (Carbonari & DiClemente, 2000; DiClemente, 1981; DiClemente, Carbonari, Daniels, et al., 2001; DiClemente et al., 1985; Shaw & DiClemente, 2016; Velicer et al., 1990).

Self-efficacy has been examined among individuals at each of the stages of change. It seems a stronger and more important predictor once the individual begins to engage in the behavior change and as a predictor of maintaining that change. Efficacy evaluations have been strong and

effective predictors of individuals who can sustain the actions needed to instigate and maintain the behavior change over time (Bandura, 1997; Carbonari & DiClemente, 2000; DiClemente, Carbonari, et al., 1994; DiClemente et al., 1995; Shaw & DiClemente, 2016). Self-efficacy, then, emerges as an important marker of the transition from the Preparation stage through the Action and Maintenance stages. However, self-efficacy does seem to play a role in earlier stages as well. Individuals who have little confidence in their ability to perform a behavior like abstaining from alcohol may become stuck in the Precontemplation stage, feeling hopeless about the possibility of change (Daniels, 1998; DiClemente, 1991; DiClemente & Hughes, 1990; DiClemente & Velasquez, 2002). Therefore, efficacy evaluations may be able to play a role in discriminating different subgroups of individuals in Precontemplation (Daniels, 1998).

Efficacy evaluations interact in an interesting and logically consistent manner with the experiential and behavioral processes of change. For individuals in earlier stages of change, higher levels of efficacy are related to increasing use of experiential and behavioral change processes. The reverse is true in the later stages of change (DiClemente et al., 1985): in the Action and Maintenance stages, the greater one's sense of confidence to perform the behavior, the less one uses or sees the need to use behavioral processes of change.

Temptation

Self-efficacy has a companion marker: temptation. Efficacy evaluations are typically measured across a range of situations or cues connected with engagement in the addictive behavior. Temptation represents the strength of the desire or inclination to perform the behavior in a situation (how tempted are you to smoke, drink, eat, or use drugs in this situation) or to not perform a behavior (exercise, eating a certain way). Temptation and self-efficacy are assessed using the same set of cues or triggers. Usually temptation is negatively correlated with an individual's self-efficacy or confidence to abstain from that addictive behavior. For example, someone who is not at all tempted in a specific situation to engage in an addictive behavior is usually totally confident of being able to avoid it. However, this is not always the case. Some individuals going through treatment experience strong temptations to use drugs in certain situations but are nevertheless confident in their ability to resist that temptation.

Temptation to engage in the behavior serves as a companion marker to self-efficacy to evaluate movement through the stages of change (DiClemente, Carbonari, et al., 1994; DiClemente et al., 1995; Shaw & DiClemente, 2016). Measuring varying levels of temptation across

relevant situations can be useful in developing change plans during Preparation stage activity and in predicting successful Action and Maintenance stage activities. Temptation and self-efficacy, although related, are not mirror images of each other. The interaction of an individual's temptation with her or his level of confidence (self-efficacy) has been an interesting relationship to examine in the Precontemplation stage (DiClemente & Hughes, 1990) and to use as a predictor of success in the later stages of change (Carbonari & DiClemente, 2000; DiClemente, Carbonari, Daniels, et al., 2001). Both temptation and self-efficacy are included in the discussion of markers of addiction and change.

THE CONTEXT OF CHANGE

Any single pattern of behavior occurs in the context of an individual's entire life. Therefore, changing a habit always has important implications for multiple areas of that life. A holistic perspective is needed to understand fully the process of human intentional behavior change. The contribution that life context makes to the process of change is represented in the TTM by five areas of functioning: current life situation, beliefs and attitudes, interpersonal relationships, social systems, and enduring personal characteristics (DiClemente & Prochaska, 1998; Prochaska & DiClemente, 1984). Issues, problems, resources, or liabilities in each of these five areas can facilitate or hinder successful change of any specific pattern of behavior.

These areas also represent the focal content areas emphasized in different theories of psychotherapy. Cognitive therapies view the level of beliefs and attitudes as the most critical place to intervene to achieve significant change. Family therapists concentrate on shifting the family system. Psychodynamic therapists focus on the enduring intrapersonal dynamics that they assume control successful long-term change of any single problem behavior. Thus each area can be considered the primary focus or key targeted mechanism of change identified by different theories of therapy and behavior change. Once again, in its attempt to be integrative, the TTM highlights potential interactions among diverse theoretical emphases.

Originally, these areas of functioning were called levels of change (Prochaska & DiClemente, 1984). The concept of levels was used to indicate that the five areas extended in hierarchical order from the most current and obvious area of problems (symptoms and life situations) to maladaptive cognitions, interpersonal conflicts, and family/system conflicts, and ultimately to the most historical and deeply rooted types of issues (enduring personal characteristics or intrapersonal level). Problems

occurring at the top levels were viewed as more easily changed and most often the focus of attention (symptomatic). Problems at the bottom of the hierarchy were those seen as most difficult to change and requiring more extensive interventions (Prochaska & DiClemente, 1984).

I have relabeled this aspect the context of change because these areas surround as well as interact with an individual's movement through the process of changing any single behavior pattern. These five areas could be organized in many ways because they include psychological dimensions of symptoms, cognitions and intrapersonal conflicts, interactive dimensions of interpersonal relationships and larger social systems, and a situational dimension that focuses on the current environment and the individual's status. The hierarchical nature of these areas is not compelling. I keep these areas in the same order as they appeared in earlier versions of the model for consistency. However, I prefer to see these five areas in the broad context of the individual's life surrounding any single change of a pattern of behavior.

The distinction between an individual's behavior targeted for change and the context of that change is a matter of chosen focus. It can shift. The behavior change target is most often in the foreground, with the contextual areas in the background of the individual's or provider's attention. When the individual tries to quit drinking, other problems, such as with his or her marriage or family, are considered later. However, this relationship can shift when problems come to the foreground along with the target behavior. For example, while trying to change the alcohol problem, family or marital problems often arise, demanding attention. At other times, the relationship between target behavior and contextual issues resembles that of the perceptual shift between figure and ground. When one area comes into the foreground, other problems, even what was considered the most important target behavior, recede into the background. The relationships among areas of functioning and the addictive behavior will be a central theme in our discussion of movement through the stages of human intentional behavior change.

The five general areas of functioning identified include:

1. *Current life situation.* This area includes the current internal and external environment in which the change is to take place. The individual's emotional and mental status as well as the current living situation are included in this area of functioning. The targeted addictive behavior is typically viewed as one cluster of symptoms in the current life situation. Assessment of the current levels of anxiety and depression, the living situation, financial and educational resources, intellectual ability, and coping skills can identify examples of strengths and/or problems in

the life situation that can interact with movement through the stages of change. Research demonstrates that, in general, individuals who have more resources and fewer problems in their current life situation have a better prognosis for a successful transition through the stages of cessation. At the same time, resources and support can provide protective factors for initiation of an addiction.

2. *Beliefs and attitudes.* An individual's current belief system and basic values provide the cognitive framework in which the change is to take place. Basic beliefs about how change should happen, about what is needed for successful change, as well as general beliefs about self and world, religion, and family interact with the process of change in many ways. Once again, assessing how beliefs are involved in changing the behavior pattern in question can assist in understanding why one individual may be protected against initiation or, when entering recovery, gets stuck in Contemplation, rushes to Action, or fails to maintain the behavior change (Prochaska & DiClemente, 1984).

3. *Interpersonal relationships.* This area includes dyadic interactions in the person's life, including interactions with significant individuals, like spouses, special friends, and lovers. These interactions can foster or hinder movement through the process of change in many ways. Interpersonal influence is often an important consideration in decision making as individuals contemplate changing a behavior. Several of the key decisional considerations included in the pros and cons for change identified by Janis and Mann (1977) were the evaluation and approval of others. In addition, interpersonal problems can play a decisive role in the decision to make a change and often influence whether that change is sustained (DiClemente, Dolan-Mullen, & Windsor, 2000; McBride et al., 1999).

4. *Social systems.* The various social systems, including the family system as well as the social network and societal and work systems, that the individual occupies can influence the process of change. These systems may offer support for or interfere with the change. Social systems influence through persuasion, modeling, social norms, and social reference (Bandura, 1986) as well as by providing incentives or barriers for change (Chassin et al., 1996; DiClemente & Prochaska, 1998; Prochaska, Norcross, et al., 1994; Van Ryzin, Fosco, & Dishion, 2012).

5. *Enduring personal characteristics.* This area encompasses basic personality characteristics and conflicts that influence the change process. For example, being more impulsive or obsessive can hinder or promote decision making, planning, and implementing the plan and taking

action. Issues of personal identity, self-esteem, conscientiousness, extraversion, agreeableness, and neuroticism could all play a role in complementing or complicating change (Costa & McCrae, 1992; DiClemente, 1994).

These five contextual areas of functioning can influence the process of change. For example, a man who is sedentary needs to become more physically active. He can be assisted in moving through the stages of change by living near recreational facilities and having a value system that emphasizes physical health (Lee & DiClemente, 2000). In addition, an active partner, a social network that encourages physical activity like golf, tennis, or swimming, and a more outgoing personality could also facilitate his adopting a regular physical activity regimen. On the other hand, a cold climate, negative attitudes about sweating, a sedentary spouse and family, and a phlegmatic personality could interfere with that change. Similar factors can play a role in quitting an addictive behavior like cigarette smoking. Having a spouse and friends who smoke, believing that good health is genetic and unaffected by personal habits, and having a job that supports frequent breaks for smoking impede consideration of change. Problems of being overweight, anxious, or depressed further interfere with quitting. But areas of functioning can also facilitate quitting smoking. A new job that has many smoking restrictions, a spouse who quits, or a family member who gets lung cancer could help the transition into Contemplation for smoking cessation. Likewise, some areas of functioning can influence decision making and movement to Preparation and Action for smoking cessation: a parent who quit at one's current age, an age-40 transition, a new love interest who is allergic to smoke, or the birth of a child.

Resources and liabilities in these five areas of functioning can promote or hinder movement and affect the probability and speed of transition from one stage to the next. However, not every problem is relevant to changing a specific behavior. For example, sedentary spouses or negative attitudes about sweating may have no relevance to quitting smoking. The central question to ask is whether these five areas of functioning influence transitions through the stages of change for the targeted behavior. If issues in one or more of these areas of functioning are complementing or complicating the process of change, they may have to be addressed, augmented, neutralized, or modified to facilitate movement.

In any case, as individuals initiate, modify, or stop one behavior, changes in other areas of functioning almost certainly will occur. Developing and ceasing any habitual behavior have ramifications for other areas of functioning. Becoming a regular smoker, for example, initiates shifts in social networks. It can influence choice of partners, choice

of residence, and beliefs about addiction. Change of any one habitual pattern of behavior reverberates through the entire personal life space and social network of an individual. The context of change helps us to identify factors that complement or complicate the process of change (DiClemente, 1994).

One final point should be made concerning these areas in the context of change. When the focus of change shifts from the original target to a problem in one or more of these contextual areas, the context problem can also be viewed through the stages of change. Moreover, individuals may be more or less ready to address the specific contextual problem. For example, individuals may have to change where they live or whom they live with before they can progress further in changing an addictive behavior. Thus a living situation can be a specific target for behavior change along with, or sometimes prior to, being able to move successfully through the stages of change for an addiction. Chapter 8 discusses this in more detail. The important point to remember is that contextual areas make movement through the process of change more complicated because each of these areas can facilitate or frustrate completion of stage tasks and can, at any time, increase in salience or severity to become a primary focus of change efforts.

SUMMARY

The stages, processes, markers, and context of change outlined in the TTM offer a template for examining intentional human behavior change in various areas of an individual's life. Initiating or modifying habitual patterns of behavior are difficult endeavors that take time and energy. All of us have behavior change success stories and many tales of behavior change failures. The framework of the TTM attempts to outline the important steps, tasks, activities, experiences, and contextual influences that can help us to understand the differences between success and failure in the movement through the process of intentional behavior change. Although originally conceived in the context of psychotherapy and change of psychological problems (Prochaska & DiClemente, 1984), this model has been used extensively to examine health and addictive behavior changes (Connors et al., 2013; DiClemente & Prochaska, 1998; Norcross et al., 2011; Prochaska et al., 1992; Weinstein, Rothman, & Sutton, 1998). The next chapter begins to apply this model to addictive behaviors in more detail.

CHAPTER 3



The Well-Maintained Addiction

An Ending and a Beginning

An addiction is the end state of a process of change whereby the addictive behavior becomes habitual, problematic, and difficult to dislodge.

DEFINING THE WELL-MAINTAINED ADDICTION

The path to becoming addicted ends in addiction—a persistent, severe use disorder. Addiction represents the final Maintenance stage of the initiation process of change, and this explains why it can be so difficult to dislodge. Once individuals complete the Maintenance tasks and incorporate the addiction into their lives, they leave the process of becoming addicted and enter the Precontemplation stage for the change process that, one would hope, ends in recovery (Figure 3.1). Thus it is appropriate to begin to understand both the initiation of and recovery from addiction with this stage. Addiction occurs when the individual becomes both *regularly* and *dependently* engaged in the addictive behavior. Both characteristics must be present and, as we saw in Chapter 1, both terms must be defined clearly to understand the well-maintained addiction.

A Regularly Occurring Pattern of Behavior

A clear pattern of engaging in the target behavior or constellation of behaviors signals either Action or Maintenance stages for initiation of

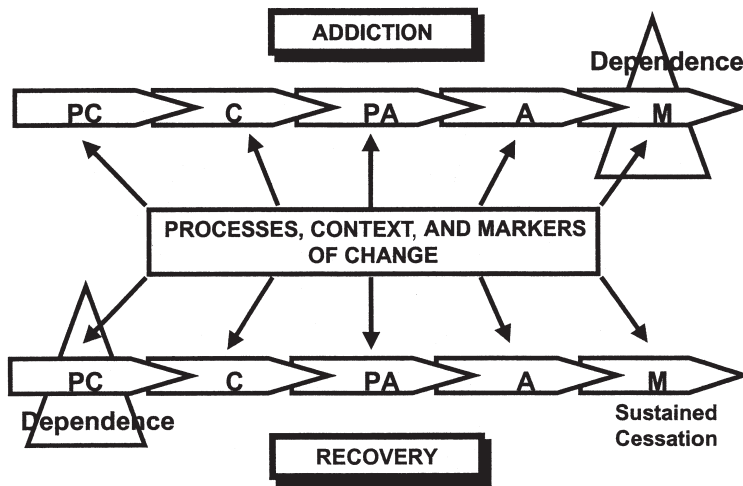


FIGURE 3.1. An overview the stages of addiction and recovery.

that behavior (DiClemente & Prochaska, 1998). Repeated, habitual engagement in an addictive behavior indicates that the individual has a pattern of use that already is or is becoming predictable. Regular use can include periodic or intermittent engagement in the behavior as well as daily use. There are many different patterns of frequency and intensity of engagement that can be considered habitual: individuals who travel to Las Vegas 10 times a year to engage in heavy betting; drinkers who predictably overdrink whenever attending a business meeting; cocaine users who go to a crack house after every argument with a spouse. The face of addiction can vary by type of behavior as well as by pattern of engagement. If there is no pattern to the behavior or only sporadic use or engagement in the behavior, we are usually dealing with earlier stages of the process of becoming addicted. The Action stage and, even more critically, the Maintenance stage of an addictive behavior are characterized by this repeated, consistent pattern of engagement in the newly adopted behavior.

Addictive behaviors often become so predictable that others in the immediate environment anticipate it. Dunn and colleagues (Dunn, Seilhamer, Jacob, & Whalen, 1992) studied marital satisfaction of problem drinkers and their spouses on a weekly basis over several months. The findings of this study indicated that marital satisfaction of the drinkers' spouses decreased *prior to* rather than after the period of heavy use. Family members of alcoholic and drug-addicted individuals learn to

anticipate the behavior precisely because the engagement in the addictive behavior is patterned and predictable.

Once individuals begin to engage regularly in the addictive behavior, three paths are possible. One is a pattern of regulated use with little or no misuse. A second is a pattern of misuse that is problematic and sporadic, often still qualifying for a mild or moderate use disorder even if the pattern is time limited (e.g., as often occurs in college drinking). The third consists of a pattern of problematic, dysregulated use that would indicate a moderate or severe use disorder. Some people develop a pattern of drinking beer or wine with meals that is regular but not problematic. Others develop a periodic pattern of drinking to excess that causes some problems or may be embarrassing, but is under self-regulatory control for the most part. The pattern we label an addiction is one where the individual develops problematic patterns of use that indicate significant neuroadaptation to the substance/behavior, serious disruption of self-regulation, and increasing salience of the behavior in the individual's life. The differences among these three paths lie in whether and how much the repeated pattern of engagement in the addictive behavior can be considered self-regulated and under personal control or dysregulated and problematic. That is why a pattern of regular use is only one element in the definition of the well-maintained addiction.

Dependence as a Marker of Addiction

For a regular pattern of use to be considered an addiction it must also be a *dependent* pattern. Although DSM-5 has moved away from a diagnosis of dependence to a more nuanced and dimensional diagnosis of use disorder, the concept of dependence as a way to understand the depth and breadth of a diagnosable use disorder is still useful. Dependence becomes the second necessary and critical dimension to define addiction. It is multidimensional. The term *dependence* indicates that the pattern of behavior (1) is under poor self-regulatory control or appears out of control, (2) involves biological and neurological adaptation to engagement in the behavior, (3) continues despite problems and negative feedback, and (4) has become an integral part of the individual's life and coping. Moreover, reinforcement for the behavior has become strong and, often, prepotent in the life of the individual. During the Maintenance stage of addiction, these reinforcements involve both physiological and psychological mechanisms. This combination creates a powerful reward system that clouds awareness of problems related to the behavior and makes change difficult and, at times, seemingly impossible. Note that individuals who develop a regular pattern of use that is under self-regulation and responsive to feedback should be considered in the Maintenance stage

of a self-regulated pattern of behavior, not an addiction. I discuss these paths in greater depth in Chapter 6.

Once individuals have developed this regular and dependent pattern of behavior—be it gambling; drinking alcohol; smoking cocaine, cigarettes, or marijuana; excessively dieting; problematic sexual behaviors; or using illegal drugs—they appear locked into the behavior and are unwilling to seriously consider change. The addictive behavior pattern can continue for significant segments of people’s lives. Many of the smokers in our research studies had been smoking regularly for more than 20 years. They had been good at minimizing harmful consequences and creating lifestyles that allowed for smoking daily and continuously. The same is true of the many individuals who have rearranged their lives to accommodate years of excessive drinking, problematic gambling, or drug dependence. Problematic patterns continue despite family pressure, attempts to stop, and significant losses. These individuals certainly would qualify for having a “well-maintained addiction.” The rest of this chapter examines some of the factors that contribute to the maintenance of problematic, dependent, dysregulated use, the final stage in becoming addicted, which in DSM-5 is diagnosed as a severe use disorder.

BEHAVIORAL PROCESSES CONTRIBUTING TO MAINTENANCE

As the individual moves into the Action and Maintenance stages of change, opportunities to engage in the addictive behavior seem to expand while activities and enjoyments in other areas of life contract. This phenomenon has been referred to as a narrowing of the behavioral repertoire and social network, and it makes engagement in the addictive behavior more concentrated and central in the life of the addicted individual. As this happens, several behavioral and learning theory processes appear to be operating. The behavioral processes of conditioning, stimulus generalization, and reinforcement help to connect the addictive behavior to physiological, psychological, and environmental cues in multiple areas of the individual’s life context. This makes the addiction an integral part of an individual’s life and lifestyle. Other behavioral processes of change—self-liberation and helping relationships—play a critical role in creating the durable, extensive, problematic, and dependent pattern of addiction. There is also a role for the cognitive/experiential processes, as discussed later in this chapter. However, it is the continued, repeated engagement in the behavior itself that creates the habit. The behavioral processes cement it into the very fabric of the individual’s life and make it more automatic. These are powerful

processes that, once put in motion, often require little thought or concerted effort to continue engagement.

Conditioning

All addictive behaviors have a physiological and psychological reaction that makes them enjoyable and exciting. They are “appetitive” behaviors sought out for their pleasurable or reinforcing qualities (Orford, 1985). This makes them vulnerable to conditioning. The learning process called *conditioning* involves pairing a neutral stimulus with one that automatically or predictably evokes a reaction; after a number of pairings, the neutral stimulus by itself will evoke the reaction. In the famous (but possibly apocryphal) Pavlov experiment with dogs, a bell was paired with food. After several trials, the bell by itself could trigger the dog to salivate without the presence of food. The capacity of conditioning with an addictive behavior is particularly compelling when we examine various psychoactive substances. Otherwise neutral sights, sounds, scenes, and behaviors that tend to occur with the drug taking become capable of producing on their own some of the drug’s physiological effects. Many behaviors and situations that previously were unrelated to the addictive behavior become potent signals that arouse physiological and psychological states that feed desire, craving, and temptation. This conditioning effect occurs over time, so that the greater the frequency and intensity of the behavior, the more cues and triggers are created by the conditioning process (Carey et al., 2014; Hinson, 1985). These conditioning processes seem similar for gambling and Internet addictions (Singer, Anselme, Robinson, & Vezina, 2014; Weinstein & Lejoeux, 2015).

There are many examples of conditioning effects. Heroin addicts who are unable to obtain the drug will often inject themselves with a saline solution containing no heroin to experience what is called a “needle high.” Numerous cocaine-addicted individuals in early recovery report intense reactions and temptation upon seeing any white substance in a plastic bag or patterned in lines on the table. The conditioned connections between cigarette smoking and a cup of coffee, a drink at a bar, and the ending of a meal are well known by smokers (Orleans & Slade, 1993). Conditioning creates an increasingly complex web of cues that are closely associated with the behavior. The cues then trigger a felt need for the addictive behavior (Galizio & Maisto, 1985).

Cues can be internal as well as external. Internal cues are often referred to as urges, cravings, or experiencing temptation to use. Craving is a multidimensional concept, and there are multiple measures that attempt to capture the phenomenon (Drobes & Thomas, 1999). Craving is measured as an individual’s physiological reactions (heart rate, blood

pressure, respiration) that can be triggered by alcohol or substance-related stimuli (cue reactivity), alcohol consumption (drinking some alcohol primes or increases urges to drink), or subjective, self-reported urges to drink (Schoenmakers et al., 2010). Craving has been included as a symptom used in DSM-5 diagnostic criteria for a substance use disorder (American Psychiatric Association, 2013). Conditioning also affects attention so that there is greater attentional bias for substance related cues (Field, Munafo, & Franken, 2009). Conditioning is also partially responsible for self-reported temptation to use. Temptations differ by type of situational prompt (social or negative affect) and can differ by type of drinker or smoker (DiClemente, Carbonari, et al., 1994; Shaw & DiClemente, 2016).

The conditioning process begins in the Action stage of engagement and culminates in the Maintenance stage to create the firmly established addiction. Repeated trials or experiences are needed to create a conditioned response and require active engagement in the addictive behavior. As discussed in the next sections, conditioning combines with stimulus generalization and both positive and negative reinforcement to create a life context filled with influences and forces that sustain engagement in the addictive behavior (Moos, 2006; Volkow et al., 2016). Recent research on the neurobiological bases for conditioning indicates that there are multiple areas of the brain involved creating such a durable habit. Carey and colleagues argue that there are two types of conditioning that create potent drug associations: delay conditioning, which represents a more automatic reflexive Pavlovian learning type that relies on pairing of cues in the environment with drug effects; and trace conditioning, which involves the frontal cortex usually associated with voluntary behavior and is less automatic, requiring repeated engagement. Others have identified impairment in multiple neurotransmitter systems and brain structures that interfere with goal-directed decision making and support drug-seeking behaviors (Carey et al., 2014; Garbusow, Sebold, Beck, & Heinz, 2014). Conditioning creates complex physiological connections that support continued use.

Stimulus Generalization

Stimulus generalization is a process whereby something learned in one specific setting or one set of circumstances generalizes, or spreads, to other similar settings, cues, and circumstances (Barrett, 1985). The smoker who began by smoking only in social settings with friends who smoke then starts to smoke in social groups of friends where there are few smokers, and then begins to smoke alone at home. The drinker who regularly stops off at a bar after work for a couple of beers begins

to visit the bar at lunch. The weekend marijuana user begins to smoke weeknights after work during a period of stress. These are all examples of the change process of stimulus generalization. As the behavior becomes paired with more and more parts of the individual's life, it becomes ingrained into the very fabric of that life. More situations, emotions, events, and places become opportunities, cues, or triggers for the behavior. Stopping an addiction once this generalization process has occurred often involves restricting access to the places and situations where the individual has engaged in the behavior (stimulus control). Generalization is also a powerful psychological and neurobiological process contributing to the spread of the behavior throughout the individual's life.

Reinforcement

B. F. Skinner (1938) first demonstrated the power of reinforcement in shaping the behaviors of pigeons. His theory states that behaviors followed by a reward, that is, those that are reinforced tend to recur more often than those not so rewarded. These rewards can provide positive (experiencing something pleasurable or rewarding) or negative (experiencing relief or removal of something unpleasant) reinforcement. As described earlier, all addictive behaviors have positive physical and psychological rewards. In fact, reinforcing potential is an important characteristic in deciding which drugs have an addiction capacity. But the rewards of addictive behaviors can be obvious or subtle. The most obvious reinforcers are the high emotional arousal experienced by the cocaine user; the mellow, relaxed effect of marijuana use; the excitement of a run of luck at a gaming table; and the release of inhibitions after a couple of drinks in a social situation. All these reinforcers are mediated by neurotransmitters and other types of brain activity (Robbins, Ersche, & Everitt, 2008). Subtler but powerful reinforcers provided by addictive behaviors include release from tension, assistance in avoiding difficult emotions, almost imperceptible easing of self-doubt, and a real sense of belonging. Positive reinforcement creates the reasons in favor of the addictive behavior. At the same time, negative reinforcements (including avoiding withdrawal, loss of pleasurable effects of using, and other disruptive effects of abstaining) add to the costs of giving up the behavior (Volkow et al., 2016). Understanding the reinforcements and the brain mechanisms and activities that underlie these reinforcing mechanisms can offer a clearer picture of how the addiction developed and how the behavior is maintained (Reuter et al., 2005). Unfortunately, even the addict is sometimes unaware of how many important reinforcers exist for their engagement in the addictive behavior.

Substances also have the effect of desensitizing the brain's reward circuits as well making reinforcing daily activities seem less rewarding (Volkow et al., 2016). The repeated use or engagement in the addictive behavior hijacks the individual's reward system. Relationships, hobbies, work, and other activities become less motivating. Seeking the reinforcing effects of engaging in the addiction becomes a primary preoccupation, even if the initial reinforcing effects remain elusive. The search for satisfying reinforcers and re-regulating this disordered reward circuitry is one important reason for the long road to recovery.

One of the most important negative reinforcers for the addictive behavior is the way further use remedies the unpleasant physical reactions that are consequences of the previous use. Feelings of depression often follow a cocaine high later that day or in the days following (Weaver & Schnoll, 1999). But more cocaine can temporarily remedy the depression. Negative physical reactions following the mood-altering experiences of addictive behaviors are common and often referred to as withdrawal effects. They occur after a period of using and during a period of nonuse, sometimes even days after stopping use, as with alcohol. Individuals who are moving into the Maintenance stage soon learn that the addictive behavior has the wonderful reinforcing property of reducing these negative physical symptoms. The "hair of the dog" morning-after remedy for an alcohol-induced hangover is a classic example of negative reinforcement. Relieving or escaping the negative effects creates negative reinforcement of the addictive behavior, which becomes an important force in undermining self-regulation.

As an individual's addiction becomes well maintained, this negative reinforcing effect becomes more powerful. Regular cocaine users begin to find that "normal" life, experienced without the influence of cocaine, has lost its color and excitement. Events and activities that used to produce pleasure pale in comparison to the high experienced with cocaine. More and more cocaine is needed simply to avoid the depression and disillusionment that accompany a life without it. Dependent, heavy-drinking individuals are in danger of grave physical withdrawal symptoms, including delirium tremens, if they quit drinking abruptly. Thus drinking to avoid withdrawal becomes an important and compelling reinforcer for continued heavy drinking.

Both positive and negative reinforcement created by the physiological and psychological effects of the behavior play important roles in developing a well-maintained addiction. Solomon and Corbit (1974) examined this effect and developed the opponent process theory, which states that, in addition to the positive effects of engaging in the addictive behavior, the rebound effect attached to the substance use through a reinforcement process makes addictions durable and resistant to extinction.

These reinforcers play an important role in addiction's Maintenance stage, and physiological reinforcers are particularly potent. The strength of these physiological effects during Maintenance probably accounts for the extensive emphasis initially given to physiological factors in early definitions of addiction. These definitions equated addiction with physical dependence defined as tolerance and withdrawal. However, many addiction specialists have recognized the limitations of using physical dependence as the defining factor in addiction. All the reinforcing effects, not simply the physiological ones, are important in creating a well-maintained addiction. In fact, once in the Maintenance stage, there is increasing evidence that physiological and psychological factors create what has been called the cycle of addiction, where stress triggers preoccupation with use that leads to use, and then creates more stress, preoccupation, and continued use (Koob, 2013; Koob & Volkow, 2010).

Self-Liberation

Although the processes of conditioning, stimulus generalization, and reinforcement often operate at the threshold of awareness, the addicted individual continues to make choices that interact with the conditioning and reinforcement processes to support engagement in the addictive behavior. There are choices to seek substances, to frequent the places where there is access, and to stay around individuals who engage in similar behaviors. It takes choice and commitment to continue obtaining effective access and seeking the addictive behavior when negative personal and social consequences begin to emerge. The state of being addicted does not take all choice and decision making from the individual. However, choice becomes compromised as more areas of life become infused with the addictive behavior and the reinforcements it provides become the most salient ones in the individual's life. Conditioning and reinforcement effects often make it seem that the addicted individual appears to be functioning more on autopilot than choosing. Nevertheless, whether an addiction is labeled a brain disease or a chronic condition, a chosen commitment to the addictive behavior continues, as indicated by the significant effort and skill needed to engage in the behavior without detection (Heather & Segal, 2017).

Helping Relationships

Once a person begins to regularly engage in the addictive behavior, by necessity he or she begins to associate with other persons who are like-minded and have similar patterns of behavior. These groups of individuals create a support system for engaging in the behavior and offer

companionship. They become a normative group against which to measure oneself. College binge drinkers report more friends who drink and perceive more drinking on campus (Quigley & Marlatt, 1996). Often individuals who are referred to treatment by courts or families will protest that they do not drink any differently than their peers. This usually is not a lie. These individuals associate with others who are drinking at a similar frequency and intensity. Many times, they will assert that they can drink with fewer consequences and consume even less than those around them. If they have a problem, then so do all their friends! Drinking, drug use, gambling, and smoking each create an environment and a support system that encourages continued engagement in the addictive behavior.

Seeking the support of like-behaving individuals occurs even in youth who are in the Action and Maintenance stages of initiating an addiction. We have examined data from the Maryland Youth Tobacco Survey of thousands of middle and high school students and staged them for initiation of smoking (Delahanty, DiClemente, & Pitts, 2007). We then looked at groups of students in these different stages and compared them on the number of their four best friends who smoked. Students who were in Precontemplation for initiating smoking (not smoking and would definitely not smoke in next year) had less than one smoking friend on average. Students smoking regularly (Action) had two to three smoking friends, and those smoking regularly for more than 6 months (Maintenance) had three or more friends who smoked. We have replicated these findings with both middle school and high school youth and in surveys taken biannually over 10 years (DiClemente, Delahanty, Garay, et al., 2010). As initiation progresses toward the Maintenance stage, the smoker gathers more and more smokers to surround them.

In moving from Action to Maintenance of an addiction, the behavioral process of helping relationships supports the addiction. Fellow users will confirm that families, courts, other friends are overreacting and that there is no problem. Support systems that could be protective become subverted. Often the social norms and influence of family and peers become risk factors for continued use (Moos, 2006). Social support for engagement is often a strong component in creating the well-maintained addiction, as alcohol, drugs or other addictive behavior permeate the individual's entire social network (Beattie & Longabaugh, 1999; Longabaugh, Wirtz, Zywiak, & O'Malley, 2010).

What emerges in this view of the Maintenance stage is the importance of the behavioral processes of change in creating a solidly established, dependent pattern of an addictive behavior that escapes self-regulation and is labeled addiction. The behavioral processes of conditioning, generalization, and reinforcement play crucial roles in

developing the regularity of the behavior pattern and in encouraging maintenance in the face of negative consequences. Self-liberation plays a role as the individual continues to make choices and commitments that support continued engagement in the addictive behavior. Helping relationships are created that normalize problematic engagement. The addicted individual increasingly turns for support to others with similar behavior patterns. However, the importance of the behavioral processes does not eliminate a role for experiential processes of change and some of the cognitive markers of change.

DECISIONAL BALANCE IN THE MAINTENANCE OF ADDICTION

Is continued dependent engagement in an addictive behavior a rational choice? What role does decision making play in this Maintenance phase of addiction? These are important and controversial questions. Many models of addiction reviewed in Chapter 1 consider the individual's behavior to be no longer under voluntary control once she or he is addicted. In the medical and disease models, the disease takes over and physiological cravings are overwhelming. The problem is explained as either an allergy-like condition or a defect in character or will that no longer allows for choice when faced with the prospect of engagement (Slaymaker & Sheehan, 2013). These perspectives have been promoted to counter the overemphasis earlier in this century on addiction as simply a moral problem easily cured by straightening up and doing the right thing (Donovan & Marlatt, 1988).

However, addiction need not be viewed as either totally within or totally outside individual choice and rational functioning. As anyone who has been addicted can attest, once one is engaged in regular, dependent use, the prospect of living without this particular behavior seems illogical and impossible. On the other hand, literally hundreds of little decisions are made daily and weekly to ensure access to the behavior. Arranging schedules, making excuses, sneaking off for periods of time, and minimizing consequences are all part of the process of protecting continued engagement in the addictive behavior. Although self-regulation becomes more compromised as individuals move from Action to Maintenance stages, this does not mean there is a total absence of choice or freedom. When I was a smoker, I remember deciding to leave my warm home to go out driving in the middle of the night in the dead of winter searching to find an all-night grocery to get a pack of cigarettes. The choice was spurred by the realization that I would have to go to sleep and, more important, wake up the next morning nicotine deprived and craving a cigarette; it seemed a reasonable thing to do at the time. Once addicted,

individuals continue to make the little decisions that maintain the addiction and contribute to the stability of the behavioral pattern.

Behavior economics and dual process researchers have demonstrated that individuals' explicit and implicit evaluations and attitudes influence engagement in the addictive behavior, as well as contribute to relapse once individuals have stopped engaging in the behavior (Chassin, Presson, Sherman, Seo, & Macy, 2010; Wiers & Stacey, 2006). Measures like a purchase task evaluate how much money the individual would be willing to spend to access cigarettes, alcohol, or other substances (Mackillop & Murphy, 2007). The greater the investment, the more significant the problem or the dependence on the substance or behavior—and the greater the probability of relapse. Other behavior economic measures highlight the impulsivity and lack of consideration of longer-term consequences that also contribute to the ongoing decisions and choices individuals make to engage in these addictive behaviors, thereby creating a “complex self-organizing system” (Bickel & Potenza, 2006).

The Potency of Positives in Addiction

Our research into the decisional balance of individuals who are addicted and not interested in change is instructive. In almost all cases, smokers and drinkers who do not want to quit endorse the pros of the behavior more strongly than the cons of the behavior (DiClemente et al., 1991; King & DiClemente, 1993; Prochaska, Velicer, et al., 1994; Velicer et al., 1985). This often seems unreasonable to the observer. However, the essence of addiction is that the behavior becomes integral to the individual's functioning in a way that only someone who has experienced it can truly understand. Initially, considerations like “This feels really good” or “I have never felt this relaxed or at ease” influence continued use. As personal coping and interpersonal environment become more involved, the individual sees the addictive behavior as increasingly essential to well-being. Once negative reinforcement, like avoiding withdrawal, begins to kick in and other reinforcers lose their attraction, considerations for continued engagement in the addictive behavior have become extremely powerful, often overshadowing many of life's other considerations. The reinforcing effects of neurobiological, psychological, and social aspects of addiction become a potent force for continuing the behavior.

The addicted individual's decisional considerations, however, are not all positive. Regular, dependent engagement often brings negative consequences and bad experiences. Addiction does not make individuals completely irrational, although the epidemic of heroin overdoses illustrates how dangerous and disordered the decision-making process can

become. Even addicted individuals who do not want to change can generate negative personal considerations about their addictive behaviors. Most smokers will report that smoking is a bad habit and can cause serious physical harm. Most drug addicts will admit that their drug use causes some problems. But they also see the negatives as tolerable or not that bad, and the positives of continued use as substantial (Daniels, 1998; see also Chapter 7 on Precontemplation for recovery). This is their view even when, to an outside observer, the negatives appear numerous, very serious, and compelling reasons for change. And so, the basic decisional stance of the individual in the Maintenance stage of addiction is in favor of the behavior. One reason this balance can be sustained is the real strength of the many positives. But another reason is the puzzling impotency of serious negative consequences. That issue is discussed next.

The Impotency of Negative Consequences

As individuals move from the Action to the Maintenance stage of addiction, serious single consequences are most often followed by a series of other consequences. For example, cocaine use can interfere with attendance and performance at work and result in job loss. Drinking and the ensuing violent arguments with a spouse can cause domestic violence, divorce, and, in more extreme cases, death. Gambling can create such a large debt that theft or embezzlement follows. A disorderly conduct arrest may be directly attributable to intoxication. Drug use and the conflicts that surround drug dealing often can lead to a visit to an emergency department. These are common negative consequences experienced by individuals in the Maintenance stage of addiction. Yet addicted individuals do not readily make the connection between the addictive behavior and its negative consequences. One of the most notable examples of this dynamic occurs with the increasing use of Naloxone to prevent drug overdoses. EMS staff often report that after administering this drug to a heroin user who had overdosed and stopped breathing, the heroin user awakes and refuses to go to the hospital and walks away without getting any additional medical or treatment assistance.

Such consequences arrive as disconfirming evidence about the benefits of the behavior. But a variety of tactics can be used to deflect their impact. Psychoanalytic clinicians attempting to treat unwilling clients often call their tactics defense mechanisms (Freud, 1949). From a change perspective, these tactics are Maintenance mechanisms that often involve the experiential processes of reevaluation and consciousness raising. Minimization, rationalization, projection, overintellectualization,

repression, and avoidance are all ways of thinking and managing our experiences that involve both self- and environmental reevaluation. They can be used to initiate change, but during this Maintenance stage of addiction they are used to protect the commitment to the addictive behavior. Because we all use many of these tactics in our daily lives to protect our beliefs, values, and behaviors, it becomes difficult to identify when they are harmful. One person's rationalizations often are another person's reasons.

Cognitive dissonance resolution, a process described by Leon Festinger (1957), can help explain how individuals keep a decisional balance positive for a tightly held belief or way of life despite negative consequences (Miller & Rollnick, 1991, 2002). Two common tactics for resolving the cognitive dissonance are particularly relevant for maintaining addictions: deflection and disconnection.

The cognitive dissonance resolution tactic of deflection consists of attributing a negative consequence to technical problems and not to the addictive behavior. For example, a technical interpretation of a driving while intoxicated (DWI) arrest would define it as a *driving* problem or as *getting stopped by the police*. Thus a solution might be to avoid driving when having consumed too much alcohol or to be more vigilant for police. Drinking is not the problem. This solution is reminiscent of the original dissonance studies in which true believers, whose end-of-the-world prediction failed, resolved the disconfirmation by seeing a miscalculation in the date as the problem, not the belief that the end is imminent. Deflection is a common mechanism in maintaining an addiction and avoiding the impact of consequences.

Seeing the consequences as unrelated to the basic behavior and blaming some other factor is called disconnection. It is at the heart of what has been called denial. While addicts are not immune to experiencing consequences when mired in the addiction, they do possess an incredible ability to reinterpret the source of the consequences as unrelated or minimally related to the behavior. One professional basketball player was caught using cocaine by the National Basketball Association (NBA) random drug-testing program. Even after a suspension from his team and a 4-week stay in a drug treatment program, the basketball player insisted he did not have a drug problem. The real problem, he said, was the drug testing policy of the NBA and how it was unfair to players. He had a *drug-testing* and not a *drug-taking* problem. Disconnection of consequences from the addictive behavior is rather common. Smokers complain about pollution and pollen as the causes of their chronic coughs. Alcohol-dependent individuals will claim the problem is their loved one's hypersensitivity to alcohol.

Deflection and disconnection, as well as many traditional defense mechanisms, are part of the self-reevaluation process of change. Reevaluations include reorganizing how one sees the behavior in terms of current values and beliefs. In maintaining an addiction, these reevaluations are in the service of sustaining the addiction and keeping it a valued part of the individual's life. To do this, the addicted individual must manage the decisional considerations and keep them tipped toward continued engagement in the addictive behavior.

A Possible Role for Self-Efficacy

A very different explanation for the impotency of negative consequences lies in the individual's self-efficacy beliefs. As discussed in Chapter 2 as a marker of change, self-efficacy represents the level of confidence that individuals have that they can perform a behavior. The greater the confidence and sense of efficacy an individual has, the greater the probability that he or she will make the effort and persist in the effort to perform the behavior (Bandura, 1977, 1997). In a presentation at the University of Houston, Bandura described a particularly compelling example of persistence that he attributed to self-efficacy. He noted that many famous authors and artists persisted in their endeavors despite overwhelming negative external evaluations. One author of an award-winning novel had received more than 500 rejection letters before finding a publisher. Persistence in the face of such negative feedback in this case was attributed to a strong sense of self-efficacy.

What is a virtue for the talented writer is a vice for addicted individuals. This same type of persistence can be seen in the Maintenance stage of addiction. Because the addicted individual is experiencing negative consequences, it appears to others that he or she is losing control over the behavior. However, this individual often is completely convinced of her or his self-regulatory capacity. Many addicted individuals believe that they are in good control of their behavior. They believe that they are very efficacious in their ability to control the drinking, drugging, gambling, or eating. They just don't do it or don't want to do it. Unlike the award-winning novelist, the reality is that they cannot completely control the addiction or they would or should have done so, considering the serious consequences. This overinflated sense of efficacy leads to what Bandura described as the "confident incompetent" (Bandura, 1977, 1986). This unrealistic confidence is an effective tool to deflect the impact of any negative consequences and to undermine self-regulation. These tactics reflect a critical deficit in accurate self-assessment and can help explain, at least in part, the inability of basic feedback to influence individuals in the Maintenance stage of addiction.

THE CONTEXT OF CHANGE IN THE MAINTENANCE OF ADDICTION

Multiple problems in the context of change accelerate the path through the stages of addiction, complicate self-regulation, interfere with feedback mechanisms, undermine realistic assessment of self-efficacy, and multiply risk factors. If they did not exist prior to the severe use disorder and dependent engagement in the addictive behavior, they develop as a function of time spent in the Maintenance stage of addiction. Once it is well maintained, the addiction becomes integrated into the individual's entire life context. Issues and problems in other areas of functioning interact with and can continue to fuel the addiction. Clinical depression, marital conflict, and parental interference become reasons for engaging in the addiction as well as problems in their own right. Problems within the individual's personality structure and with basic values and beliefs also are exacerbated as the individual continues to engage in the addictive behavior. It is true that there are what is described as "functional addicts" who can hold a job, remain married, and function socially to some degree, even as they continue their addictive behaviors. However, rarely have they experienced no problems or difficulties managing these functions, and even more rarely have they not alienated family or friends. If they continue to "function" in other areas of their lives, these difficulties seem less problematic.

As the addictive behavior becomes a predominant presence and an overriding value in the life of the individual, other areas of life are undervalued, problems in those areas seem less significant, and effective problem solving is compromised. Problems in the context of change increase the probability that the addictive behavior will have greater general coping value and interfere with the feedback system. As the problems in these various areas multiply, the relief provided by the addictive behavior becomes a potent negative reinforcer. As the addiction becomes well maintained, the research findings of Newcomb, Bentler, and colleagues (Newcomb & Bentler, 1988; Newcomb, Scheier, & Bentler, 1993) become most informative and relevant. They found that the addictive behavior and other life problems are mutually interactive. Life problems promote engagement in the addictive behavior, which in turn increases the number and intensity of life problems, which promotes engagement in the addictive behavior, which in turn . . . and so on. These findings describe the negative downward spiral of increasingly serious consequences that is often experienced as individuals remain in the Maintenance stage of addiction. Continued engagement creates a context of life adapted to the addiction. By the time the individual has developed a well-maintained addiction, the problems in areas of functioning have

become intertwined with the addictive behavior whether they preceded the addiction or not. These problems often impede the individual's ability to move toward recovery.

The current discussion of dual-diagnosis problems offers an interesting example of these interactions. Many individuals who suffer from serious mental disorders also have significant problems with substance abuse and other addictive behaviors (Bellack & DiClemente, 1999; Center for Behavioral Health Statistics and Quality, 2015; Regier et al., 1990). Although alcohol and drugs can be particularly disruptive for these individuals, they also can serve as a coping mechanism, a distraction, or a way of joining with other individuals on the fringes of society. Symptoms of schizophrenia, depression, or bipolar disorder can precede, coincide with, or follow engagement in the addiction. However, as the addiction becomes well established in the lifestyle of an individual with mental illness, patterns of interaction emerge. Discontinuing antipsychotic medication produces symptoms that can be masked by alcohol and cocaine use. Drug use triggers loss of housing and produces homelessness. Lack of a structured environment increases engagement in the addiction and exacerbates the mental illness. Behaviors associated with either the addiction or mental illness bring the individual to the attention of the police and create legal problems. Family members, who can tolerate the mental illness, become fearful and disgusted with the addiction and refuse to allow the individual to return home. Drugs and alcohol become more important as ways to cope with being homeless.

CASE EXAMPLES AND OVERVIEW

The charts and files of every addiction treatment facility are filled with stories of well-maintained addictions. The fictional cases of Bill X and Beth Y illustrate several variations. Both have entered and spent time in the Maintenance stage of change. However, their addictions are integrated into their lifestyles to different degrees and for differing lengths of time.

Bill X, a 40-year-old insurance broker, has been successful in his work but recently has experienced a downturn in business. Bill was a heavy drinker in college and was very active in his fraternity. After college, drinking continued to be significant part of his life. He began working for an insurance company and was successful, getting one promotion after another. Entertaining was an integral part of his work, and his social circle was filled with fraternity buddies who continued to go to sporting events and to meet in bars where the alcohol flowed freely.

He met his wife at one of these gatherings. They married, and have two children who are now 14 and 12 years old.

Although always considered a heavy drinker who could hold his liquor, Bill's drinking and problems associated with it have increased in the past 10 to 12 years. As he moved up in the company, he had more evening business activities and would extend these events into the wee hours of the morning, consuming ever-greater amounts of alcohol. His boss began giving him some feedback about his drinking, and he reacted by changing jobs, going to a company that had been courting him for the past several years. When he and his wife started a family, his wife became focused on the home and the children and did not accompany him on many of his social outings with his friends. His social network became smaller and more alcohol-concentrated, as some of his buddies no longer joined in the heavy drinking activities. Soon he was going to a neighborhood bar alone and creating a social network there. His wife was less tolerant of this activity and began complaining about his drinking. He responded at first by trying to spend more time at home, but the children were not used to his being there and rebelled at his efforts to control their lives. Increased family conflict increased his desire and need to be out of the house, either at work events or at the bar. Instead of trying to resolve the conflicts, he escaped them and increased his drinking. One night, coming home from one of his heavier drinking episodes, he was stopped by the police and given a sobriety test. He failed and received a ticket for drunk driving. He attempted to hide this from his wife and hired an excellent attorney who was able to have the charges dismissed. However, when his wife found out, she was furious and threatened to divorce him if he did not stop drinking.

During this entire time, Bill continued to see himself as a heavy drinker who could hold his liquor. He felt justified in drinking heavily because of his work and felt that he did not drink excessively in comparison to others in his group. He believed he could stop his drinking whenever he wanted and that drinking was one of the few pleasures he allowed himself because work was very demanding and he had no other hobbies or pastimes. His conversations with others about his drinking tended to reinforce his views, as he mainly had conversations with others who drank as heavily or more heavily. He believed his wife was being unreasonable in asking him to change his entire lifestyle, his children were ungrateful and spoiled, and problems at work were simply the result of a business downturn that had little to do with him.

Beth Y is a 28-year-old divorced mother of two children who is struggling to keep her job as a manager in a retail department store, take care of her children, and have a relationship with a man she met over a

year ago. Although she had experimented with a variety of drugs while she was in high school and both drank and smoked cigarettes, she had not become involved with illegal drugs to any great extent until 5 years ago. Her ex-husband began to use crack cocaine about that time and introduced her to it. She started off just using with him on weekends when she was off work. It was a great high and helped her to escape the hassles of work and the kids. Because her parents lived nearby, she could ask them to babysit so she and her husband could go out and have some fun. Her husband quickly became a heavy user, started getting into trouble with the law, and lost his job. He would spend lots of time away from home and with other women. Beth confronted him over and over and nagged him about the money problems until she could no longer put up with it. With the aid of her parents, she divorced her husband and was attempting to restart her life.

About a year ago she met Mel and fell for him. Mel was like her first husband but had a good-paying job and seemed more responsible. Mel also used cocaine on occasion, and they began to use together. Beth's parents were very involved in taking care of the children since her ex left, so she could get away and go out with Mel some evenings as well as on the weekend. She began to spend more time at his place, where there was rather easy access to the cocaine. What began as periodic social using soon became a daily activity, but only after work or on the weekends. She began to have some problems at work because she was becoming more impatient and irritable with her coworkers. As she spent more time with Mel, her use increased, but she continued to get to work and spend some time with the kids. She believed she deserved some happiness after all the stress and hard work. The cocaine became her way to escape stress and have fun. Other activities seemed less exciting, and she even cut down on her drinking.

Her increased use of cocaine has gone on for the past 9 months, but she has been able to hide it from her parents. They think Mel is not a good influence and have been asking her about him, but they are unaware of the cocaine use. She defends Mel and her right to have a relationship that makes her feel good. The children have also begun to complain that they do not see her. She believes they are jealous of her relationship with Mel and complains that their father does not help take care of them at all. She begins to spend more time away and over at Mel's.

Both these cases represent individuals who have entered the Maintenance stage and illustrate behaviors, thoughts, and activities in the dimensions of change that represent the Maintenance stage of addiction (see Table 3.1). Bill X has maintained the addictive behavior over a longer time, accomplished the tasks of integrating it into his life, has a decisional balance and efficacy beliefs that support continuation of heavy

TABLE 3.1. The Maintenance Stage of Addiction: An Overview of the Dimensions of ChangeStage task

Sustaining a regular, dependent, problematic pattern of behavior over time (more than 3 to 6 months) so that it becomes integral.

Change processes at work

Behavioral processes contribute to developing regularity of the behavioral pattern and encourage continued use in the face of negative consequences. These processes interact with neurobiological effects of repeated engagement in the addictive behavior to create a complex biobehavioral chronic condition:

Reinforcement: Behavior has physiological and psychological rewards—for example, positive reactions and feelings as well as removal of negative feelings—that increase frequency and create a pattern of behavior.

Conditioning: Situations and activities become associated with the behavior, creating a web of cues that trigger the desire to engage.

Stimulus generalization: The web of triggers spreads to more and more settings, circumstances, and emotions in the person's life.

Self-liberation: The person makes choices to engage, ensuring access and opportunities to engage even as self-regulation is compromised.

Helping relationships: The person associates more and more with others who engage, support, and encourage the behavior. This social system normalizes this problematic behavior.

Markers of change

Decisional balance: Cognitive/experiential processes influence the thinking and evaluation of the current engagement in the addiction and create a costs/benefits analysis that is weighted strongly toward engagement because of potency of the positives, impotency of the negative consequences, and increasing loss of alternative rewards. Both implicit and explicit attitudes and evaluations contribute to sustaining the behavior.

Self-efficacy: Possible false sense of self-control and/or sense of hopelessness about the ability to change that justify maintenance of the status quo.

Context of change

Multiple increasing problems—preexisting and/or consequent problems—function to complicate self-regulation, interfere with feedback mechanisms, undermine self-efficacy, and multiply risk factors. Potent neurobiological processes and changes support conditioning and reinforcement, undermine self-liberation, and create changes in neurotransmitters and neurological circuits.

drinking, and clearly has engaged in the behavioral processes of change to create a well-maintained alcohol addiction. He demonstrates many of the neurobiological effects of extensive use including generalization of conditioning, loss of potency of other reinforcers, and use of alcohol to cope and manage stress. Beth Y is in the midst of the Maintenance stage

of cocaine addiction. She has flirted with cocaine before, but this time she is engaging in behavioral processes that narrow social interactions and support the cocaine use. Problems are minimized and deflected. Context of change issues complicate and, at the same time, interact with her increasing use of cocaine. Consequences are still at a minimum, but could increase dramatically if job problems or family pressures increase. However, her more extensive use has created neurobiological reactions including depression and irritability, undervaluing other reinforcers, and increasing use to manage stress. Both Bill and Beth are now faced with the challenge of changing the addiction and beginning the road to recovery.

SUMMARY

Understanding addiction as an end stage of the path of change provides a dynamic, behavior-based, process-oriented view that is in marked contrast to the more traditional static, person-based views. Addiction is a well-maintained pattern of regular, dependent engagement and requires Maintenance stage activities in order to sustain the behavior. The critical dimensions of self-regulation and self-control have become disabled or dysfunctional as the individual moves from Action to Maintenance. Neurobiological reactivity, psychological processes, and social influences make engaging in the behavior more compelling despite consequences. The individual then begins to meet more of the criteria for DSM-5 substance use disorder diagnosis. Once in Maintenance, the individual often finds it easier to continue the problematic behavior than to change. As time in this Maintenance stage extends beyond the minimum Action stage criterion of 3 to 6 months, the addictive behavior becomes more entrenched in the life of the individual. Engaging in the addictive behavior becomes the norm. The ties between this behavior and other aspects of the individual's life grow stronger. For the well-maintained addicted individual, repeated engagement in the addictive behavior seems to relieve more life problems than it creates. Actually, the addiction becomes a constant companion, a friend, and something to count on for a predictable effect or outcome. Some commentators on addiction describe it as a love relationship because of the intensity of the bond and the commitment to the behavior (Peele, 1985).

The behavioral and cognitive/experiential processes of change combine with the neurobiological effects and contribute to establishing this habitual pattern of behavior that becomes integral to the individual's functioning. The behavioral processes of change contribute cues and reinforcements empowered by multidimensional effects on brain chemistry

and morphology. Choices and relationships sustain engagement as the behavior extends into many areas of functioning, creating a context that supports the addiction. The decisional balance remains supportive of the addiction because of the many benefits. When negative consequences in various areas of functioning occur as a result of the addiction, a variety of tactics can be used that provide supportive self-evaluations, resolve cognitive dissonance, and create a false sense of self-efficacy that keep the negative consequences at bay. It takes effort, energy, and thought to create the well-maintained addiction. This maintained behavior pattern infiltrates biopsychosocial functioning and then takes on a life of its own that is often viewed as separate from the individual engaging in the behavior. Once entrenched in the Maintenance stage of addiction, the individual seems incredibly attached to the behavior and very resistant to change, which describes perfectly the first stage in the process of recovery that we have labeled Precontemplation for changing the addictive behavior. Thus, the end stage of the process of addiction becomes the beginning stage for the process of recovery.

Many individuals never engage in addictive behaviors. Others engage but do not become addicted. The different patterns of use and use disorders will be discussed more extensively in Chapter 6 and include a model for evaluating severity of use disorders. The reality is that the well-maintained addiction is achieved by relatively few of the people who experiment or engage in addictive behaviors like drinking alcohol. Understanding how these individuals make their way along the path to develop the well-maintained addiction is the focus of the next section of this volume.

PART II



THE ROAD TO ADDICTION

*The Journey through
the Stages of Addiction*

CHAPTER 4



Exploring the Precontemplation and Contemplation Stages of Becoming Addicted and Interventions to Prevent Initiation

Thinking plays a role before, during, and after someone becomes addicted. Expectations, intentions, and experiences protect some from becoming addicted and lead others to rush toward addiction.

*T*he stages of intentional behavior change track individuals as they shift from being uninterested in an addictive behavior to experimenting, to becoming involved, attached, and finally addicted. The end of this change process is the well-maintained addiction as defined in Chapter 3. The process of becoming addicted is a process of initiation of problematic engagement in an addictive behavior. It involves creating a new habit as opposed to modifying or stopping an established one. An examination of the process of becoming addicted offers a dynamic view of the personal path into addiction that highlights what influences promote or protect against movement toward addiction, how addictions are created, and ultimately what needs to be undone in prevention or recovery.

The road to addiction begins with an individual's exposure to the behavior and with personal views about the value of engaging in the behavior. The first two stages of initiating an addiction identify the tasks and critical transitions that mark an individual's progress from not

considering engagement (Precontemplation) to serious consideration and creation of a positive decisional balance (Contemplation), and then lead to a decision to experiment or engage. Individuals can move forward and backward through these early stages. Understanding the challenges and tasks of each early stage in some detail can elucidate the underlying process of becoming addicted and clarify the important distinction between addiction and self-regulated, nonproblematic engagement in an addictive behavior. This chapter will describe the initial two stages of this process of change leading to addiction.

PRECONTEMPLATION FOR STARTING AN ADDICTIVE BEHAVIOR

The defining characteristic of Precontemplation is lack of interest in, or sometimes disdain for, the addictive behavior. Being in Precontemplation is often defined as an individual's responding "definitely not" when asked whether he or she is considering engaging in the addictive behavior in the next 6–12 months. This lack of interest can have its origin in a lack of knowledge or information, a value system that excludes consideration of the addictive behavior, or a considered decision not to engage in that behavior. Pressures to engage and protection from engagement vary depending on the age and developmental tasks of the individual in Precontemplation. A 40-year-old mother of three in the suburbs could be expected to have a different set of influences from a 16-year-old high school student in an urban public school when it comes to considering using Ecstasy. However, both would be in Precontemplation for Ecstasy if they have no current consideration of use.

Defining Characteristics of Precontemplation for Engagement

Individuals in Precontemplation have inherited, incorporated, or created decisional considerations that are weighted against engagement in the addictive behavior. Using cognitive/experiential change processes, these individuals have assimilated information and attitudes that support a negative view of the addictive behavior and counteract any positive considerations. Their views of the pros and cons for engaging in the addictive behavior are clearly tipped against not only using but even considering use. Consciousness raising (what they have learned about the behavior), self-reevaluation (seeing that the behavior does not fit with current values), environmental reevaluation (understanding how the behavior could impact social systems and family), emotional arousal/dramatic relief (being aroused emotionally about the damage that the

behavior can do or has done), and social liberation (awareness of social norms and negative views of this behavior) have helped to develop this negative decisional balance. Moreover, the environment of the person in Precontemplation often supports non-engagement, with few cues and stimuli related to the addictive behavior. For some, the natural environment of home, school, work, or neighborhood is structured this way. Others have had to work to create such an environment by avoiding cues to use and seeking friends and support systems that are incompatible with the addictive behavior. In either case, the context of change provides protective rather than risk factors, and individuals in Precontemplation generally have a strong sense of confidence in their ability to abstain from the behavior and to refuse invitations to consider use.

Precontemplation by Default or Design

How do individuals remain uninterested in an addictive behavior? One strategy is to keep individuals ignorant of the behavior's existence. If individuals are never exposed to alcohol, heroin, cocaine, or gambling either directly or vicariously (through television, news stories, and so on), they would never think about engaging in these behaviors. However, for ignorance and unavailability to function as a protective mechanism, the addictive behavior must be essentially nonexistent in the society, or the society should control access to all information about it. In our current age of instantaneous communication and viral exchanges of information, ignorance is no longer a realistic protective factor.

There are some interesting examples of how information and accessibility interact in the society to promote consideration of an addictive behavior. Prior to the 1960s, smoking peyote was limited to a very small ethnic or cultural subgroup in our society and was not even considered by the vast majority of North Americans as a potential behavior for initiation. This changed as word began to spread of its mind-altering properties and stories about its use became popular. Carlos Castaneda's (1984) *Don Juan* books exposed a large audience to the world of peyote-induced altered states of consciousness. In the context of the cultural messages about seeking greater self-awareness, this information spurred many to consider using this substance. Similarly, many years ago adolescents in West Texas rediscovered the hallucinogenic and, at times, fatal effects of the Jimson weed. This weed had existed in that community for a long time, but a rekindled interest prompted a number of youth to begin experimenting. Nonprescription use of prescription opioids began among a subgroup of rural youth and then spread across the nation to become an epidemic. Electronic cigarettes went from becoming an imported novelty to a multibillion-dollar business through a combination

of word of mouth, entrepreneurship, and advertising. Increasing awareness and interest move individuals to consider adding the substance or behavior to their repertoire of activities, and so they move out of Precontemplation and into a more serious consideration of experimentation or engagement in the addictive behavior. Influences that spur interest and relevance can come from families, peers, availability, promotions, or media and can occur in larger communities or among smaller subgroups of individuals.

Although ignorance may be a protective factor when there is little access, once information or availability arrives, ignorance is no longer blissful. New activities with potential for excitement are immediately attractive to many, particularly to adolescents. Many adolescents have incorporated the negative attitudes and beliefs of parents and influential adults, so as they develop greater independence of thought, they become more vulnerable. After exposure to some positive messages, ignorance about the addictive behavior leaves that person with little information with which to evaluate the behavior's uses or consequences and few models clearly demonstrating appropriate or problematic use. Thus individuals in Precontemplation, by virtue of ignorance or lack of opportunity, may be more vulnerable to peer misinformation and to moving quickly to considering use and experimenting and ultimately to abuse and dependence. The introduction of alcohol to Native Americans or to the Alaska Inuit seems to be a good example of this accelerated initiation process (Castro, Proescholdbell, Abeita, & Rodriquez, 1999; Reback, 1992).

Ignorance of the existence of addictive behaviors probably accounts for only a small minority of those in Precontemplation. For example, the 2015 Monitoring the Future Survey (Meich, Johnston, O'Malley, Bachman, & Schulenberg, 2015) estimated that 58% of 12th graders used alcohol in the past year, with almost 35% reporting past-year marijuana use and 20% reporting lifetime use of other illicit drugs besides marijuana. The same survey found that about 10% of eighth graders used marijuana in the past year, and large percentages of youth in all three age groups indicated that marijuana was readily available. With the proliferation of state and multistate lotteries to generate revenue, there are few youth or adults who are ignorant of gambling and games of chance or the possibility of winning the lottery (DiClemente, Story, & Murray, 2000; National Academy of Sciences, 1999). A survey of youth aged 14–21 indicated that 68% had gambled, 11% gambled more often than twice a week, and 2.1% met problem gambling criteria (Welte, Barnes, Tidwell, & Hoffman, 2008). The same is true of eating disorders, like bulimia, since examples of well-known entertainers with eating disorders have been described in news stories on TV and in the tabloids.

Therefore, ignorance or unavailability of an addictive behavior is probably only relevant as a protective factor for some substances, for the very young, or within some subcultures.

Once exposed to information about an addictive behavior and given some access to it, individuals usually must do something to ignore or manage the information to remain in Precontemplation. For most people, low levels of exposure and personal protective factors insulate them against moving into the Contemplation stage. Although research on protective factors is not as extensive as on risk factors, indications are that a modicum of academic and interpersonal success and certain values and attitudes help to keep the addictive behaviors incompatible with the person's self-perception (Chassin, Presson, Pitts, & Sherman, 2000; Jessor et al., 1995; Stone et al., 2012). The most often discussed and measured protective factors are religiosity or religious involvement, good family relationships and interactions, good self-control or self-regulation skills, peers in similar stages for adoption, parental monitoring, and economic and social stability (Chassin et al., 2000; Jessor et al., 1995). Factors like these provide a context for the individual supportive of remaining in Precontemplation (Clayton, 1992). Presence helps to keep individuals in Precontemplation; absence puts a person at risk for moving into Contemplation and experimentation as well as for progression through to Preparation and Action stages and from use to abuse (Clayton, 1992; Glantz & Pickens, 1992).

How do personal protective factors help? Academic success, social stability, and religious values promote positive considerations of alternative behaviors and support negative considerations of engaging in the addictive behavior. Thus when information becomes available or thoughts about use arise, they are dismissed, and when there is access to the addictive behavior, it is not considered seriously. Protective factors support positive self-evaluation and overall life satisfaction, so there is little need to consider risky addictive behaviors. In the lives of those in Precontemplation, personal self-efficacy to perform other satisfying behaviors is high. Efficacy to avoid the problematic addictive behavior is also strong. There may be a few serious problems or issues that might encourage the individual to explore use or engage in self-reevaluation and/or consciousness raising about these behaviors. However, temptation to engage in the addictive behavior is usually low or nonexistent. Fewer risk and more protective factors promote lack of interest in acquiring a new behavior that could disrupt or derail current satisfying behavior patterns.

The TTM's processes of change are the engines that help move individuals from one stage to the next. In moving from Precontemplation to Contemplation, individuals would need to engage in consciousness raising

(learning more about the addictive behavior), environmental reevaluation (evaluating popularity among peers), and self-reevaluation (maybe I could be someone who tries it) processes focused on the addictive behavior. Once exposed to the addictive behavior, individuals remain in Precontemplation only if they have little or no need to seek more information or reevaluate current decisional considerations that are predominantly negative. On the other hand, individuals with fewer protective factors and/or multiple risk factors would find it more difficult to avoid a serious consideration of whether the addictive behavior could be an interesting one to try. For example, witnessing violence predicted substance use among rural sixth graders, with some buffering effect of parental monitoring and support. However, protective effects were diminished with greater exposure to violence (Sullivan, King, & Farrell, 2010). Often, the combined effects of environment, risk factors, and protective factors influence individuals' thinking and self-evaluation and engage their cognitive/experiential processes of change. These, in turn, can shift decisional considerations and, ultimately, determine whether there is movement out of Precontemplation for initiation.

The Role of Context in the Transition Forward through the Stages of Addiction

Risk and protective factors found in an individual's life context play an important role in the process of becoming addicted. Risk factors represent problems and issues in areas of functioning that interact with thinking about and engaging in the addictive behavior. Protective factors are usually personal resources, positive factors, and external support in these areas of functioning that make movement toward addiction less likely. The influence of risk and protective factors vary depending on environmental and developmental considerations and type of substance. Understanding how these influences interact with the stages of change for any one or multiple addictive behaviors assists in understanding and preventing initiation. The context of change contributes to this larger probability matrix that makes movement out of Precontemplation easier or more difficult for any individual. Contextual influences are often responsible for movement forward or backward through all the stages of addiction.

Protective factors are not simply the opposite of risk factors. Jessor and colleagues (1995) identify many protective factors in the areas of current life situation, beliefs and attitudes, interpersonal relations, and social systems. Protective aspects of the current life situation include positive orientation to school and prosocial activities, like involvement in family, volunteer and school activities, sports, and clubs. Protective

beliefs and attitudes included positive valuing of health and beliefs about consequences of health risk behaviors, as well as a commitment to conventional values and intolerance of deviance. Interpersonal relationship and social system factors included friends who model conventional behavior and positive relations with adults. This study found that these protective factors independently predicted less involvement in problem behaviors, including drinking and use of drugs. In addition, these protective factors interacted with an independent set of risk factors to lessen the impact of the risk factors on engagement in problem behaviors.

Protective factors, however, should never be viewed as making it impossible for individuals to progress toward addiction. The environment, for example, can have a great impact on individuals, even those who have many protective factors. Although Robins (1979, 1980) found that having some behavioral problems prior to deployment predisposed individuals to become hooked on drugs in Vietnam, even individuals with low levels of preexisting problems became addicted. During the 1960s, many individuals who would have been classified as at very low risk to develop drug use or abuse because of their protective factors nevertheless experimented and used illegal drugs, particularly marijuana (DiClemente, 1994). Although protective factors certainly make a difference in probability of engaging in an addictive behavior, they are not completely protective. In fact, for those of us in the treatment arena, it seems clear that, at an individual level, everyone is vulnerable to developing an addiction of one type or another, and risk changes over developmental time periods. For instance, parental monitoring and deviant peers are two factors that contribute differentially to risk, depending on the age of the adolescent or emerging adult (Stone et al., 2012; Van Ryzin et al., 2012). Monitoring was more influential earlier in this developmental period and peers later.

Implicit in the discussion of risk and protective factors is the view of addictions as problematic coping responses. Addictive behaviors are needed less as adequate coping is available and stress levels are low to moderate (Shiffman & Wills, 1985). This coping model provides an important perspective and can serve as an overarching conceptual framework with which to understand the Precontemplation stage for initiation of addictions. Individuals who can make their lives work by achieving some successes in developmentally appropriate tasks and by developing solid relationships with parents and peers tend to be less likely to consider using or abusing substances or engaging in other addictive behaviors.

The protective factors of adequate coping skills and supportive environment do protect to some degree against initiation of some addictive behaviors. This seems particularly true for drug abuse (Jessor et al.,

1995). High school students who are active and engaged in academic and other pursuits are less vulnerable to seeing drug use as a potentially useful or pleasurable activity. However, these factors do not seem to stop these students from considering and drinking alcohol. Thus adequate coping may operate as a protective factor for initiation and especially for tipping the decisional balance with certain addictive behaviors more than others (Wills, Sandy, Yaeger, Cleary, & Shinar, 2001). For alcohol consumption or other ubiquitous addictive behaviors, coping skills may moderate the transition from self-regulated use to abuse and dependence rather than prevent consideration of engaging in an addictive behavior.

Nevertheless, keeping low-risk youth in the Precontemplation stage for initiation of an addictive behavior is not as difficult as doing the same for individuals with multiple life problems or with families and environments that predispose to engaging in addictive behaviors. Risk factors for developing an addiction also can be present throughout the various areas of functioning in the life context. The risk factors identified in the Jessor study (1995) included low school achievement and current feelings of hopelessness, depression, and alienation. Attitudes included low expectations for success and for achieving goals. Having friends with problem behaviors and a lack of compatibility between parents and friends also contributed, making social systems more vulnerable to use and abuse. In the areas of personal characteristics, low self-esteem and a low sense of confidence in one's ability to manage responsibilities also were identified as risk factors. These factors combined to predict problem drinking, delinquent-type behavior, marijuana involvement, and sexual experiences. Again, risk factors predicted independently as well as interacted with protective factors.

Keeping Individuals in Precontemplation for Initiation

What are the best strategies to inoculate individuals against even considering initiating an addictive behavior? How can we promote lack of interest and a refusal to consider engagement? The goal of most current prevention efforts is first to move individuals into Contemplation so that they can return to Precontemplation by decision and design rather than by default. Prevention programs like the "Just Say No" campaign, generic drug education and refusal programs, and "zero tolerance" educate all youth about drugs while emphasizing the dangers of drugs. Most often, these programs are implemented across an entire population regardless of risk or protective factors. These programs make youth knowledgeable about drugs in an effort to promote an informed decision not to use.

However, when given to some individuals in Precontemplation, such approaches may awaken them to the possibilities and make the addictive

behavior more salient or attractive than it may have been previously in the natural environment (Tobler, 1986; Werch, 2001). Asking individuals not to think about an elephant, for example, makes an image of an elephant more salient. When availability is low and the references, cues, and models for engaging in the behavior are restricted, strategies that simply make the addictive behavior ignorable or a nonissue may be better than an aggressive negative campaign. Creating a highly visible and negative image of the behavior can have the effect of raising awareness of the behavior and making it desirable. This is particularly true during certain developmental periods. In adolescence, for example, negative messages from parental figures often have the paradoxical effect of making the behavior valued because it can contribute to the sense of independence or separation from parents (Chassin et al., 1996). Likewise, school-based universal prevention and programs specifically targeting high-risk youth have different outcomes based on developmental stage of the audience (elementary, middle, and high schools) and type of program (Onrust, Otten, Lammers, & Smit, 2016). Clearly, development matters, and influence of types of programming varies depending on age and experiences of these students.

At the same time, the best prevention strategy for high-risk youth or for any youth who will experience significant exposure and accessibility is probably to move them into the Contemplation stage. This allows them to evaluate pros and cons, so that they can learn about the risks and make a conscious decision not to use. When the environment is filled with availability and opportunity to use, providing accurate information about the addictive behavior and letting youth choose not to engage is a more protective stance than simply trying to keep them ignorant.

Determining appropriate timing of education and persuasion prevention efforts that can move adolescents into the Contemplation stage and try to inoculate them against engagement is challenging. When would prevention interventions be more effective for high-risk or low-risk youth? Simplistic approaches may be part of the problem rather than contributing to the solution. Identifying subgroups of individuals with varying degrees of risk and protective factors seems to be the best way to think about developing tailored prevention strategies.

Numerous studies have identified risk and protective factors for initiation of substance abuse, gambling, and other addictive behaviors. However, few studies have examined how risk and protective factors influence individuals in Precontemplation and their considerations about the value and risks of an addictive behavior. Over the past few years, groundbreaking studies have been launched that attempt to sort out how prevention messaging affects different mechanisms of change at various stages of development (the U.S. Food and Drug Administration's

[FDA's] Population Assessment of Tobacco and Health [PATH] study; the National Institute on Alcohol Abuse and Alcoholism's [NIAAA's] National Consortium on Alcohol and Neurodevelopment in Adolescence [NCANDA] Study; the NIAAA and National Institute on Drug Abuse's [NIDA's] Adolescent Brain Cognitive Development [ABCD] study). However, until we learn about how prevention programs interact with the various environmental and family influences and affect processes of change with respect to experimentation and engagement in specific addictive behaviors, we will not fully understand the first steps individuals take toward addiction (DiClemente, Story, et al., 2000; Werch, 2001).

Several studies have begun to examine the process of change for developing an addictive behavior. Pallonen and colleagues (1998) examined adolescent smoking and compared these results to the more extensive research on adults. He found that both teens and adults appear to utilize identical cognitive and behavioral activities to change their smoking. Teens also looked like adults on the markers of decisional balance and temptation to smoke. There were some differences between adults and teens in their level of use for some processes of change. However, adolescent smokers looked like adult smokers on these dimensions of change overall. In another study that focused on staging acquisition and cessation for adolescent smokers, Pallonen and colleagues (1998) examined individuals in Precontemplation for beginning smoking and those who were planning to try smoking. Those who had never smoked were most vulnerable to try smoking when they anticipated that smoking would help them cope and reduce negative mood or increase positive mood. Hudmon, Prokhorov, Koehly, DiClemente, and Gritz (1997) examined decisional considerations and temptations to try smoking among a multiethnic cohort of fifth, eighth, and 12th graders and found predicted increases in temptation and pros of smoking as well as a steady decrease in cons of smoking across the stages of smoking initiation. These studies support various dimensions of change from the TTM as useful for examining and understanding smoking initiation. Similar measures should be used and monitored to evaluate the impact of prevention efforts aimed at those in Precontemplation for any of the addictive behaviors.

At the Maryland Quitting Use and Initiation of Tobacco (MDQuit) Resource Center, my colleagues and I have analyzed data from the Maryland Youth Tobacco Survey that examined smoking among middle and high school youth over the decade from 2000 to 2010. Overall prevalence (past 30-day smoking) among underage youth decreased over that time in middle school from 7.2% to 3.5% and in high school from 23% to 14.1%. When we examined the stages of smoking initiation over that same time period, we found a large increase in adolescents reporting

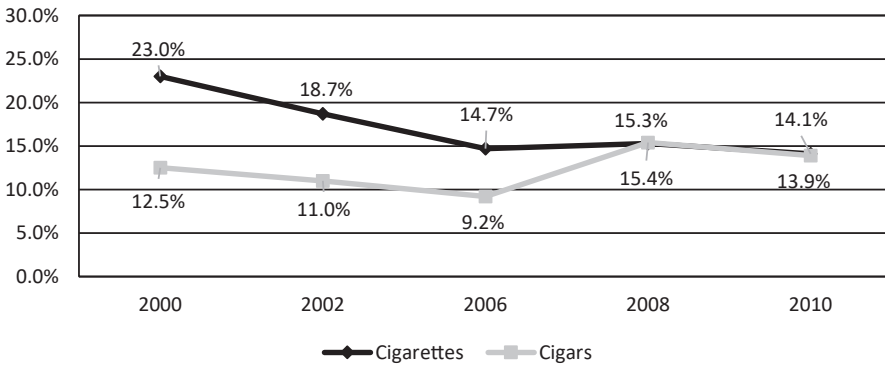


FIGURE 4.1. Prevalence of cigarette and cigar use (in last 30 days) among Maryland adolescents ages < 18 years. Data from the Maryland Youth Tobacco survey.

being in the Precontemplation stage for initiation of smoking, from 73% to 84.1% in middle school and 51.3% to 67.3% in high school. From 2000 to 2010, there was also a significant decrease in the percentage of individuals in Action and Maintenance for smoking initiation, falling from 3.2% to 1.4% in middle school and from 18.3% to 8.3% in high school. Thus there was a reduction in overall prevalence of smoking behaviors marked by a significant reduction in percentages of students in Action and Maintenance for smoking regularly. However, more importantly, there was an increase in the percentage of youth in Precontemplation for initiation. However, stages of initiation for cigars use did not show the same positive pattern in these youth (see Figure 4.1). It is also important to note that these shifts in prevalence and protection varied across state jurisdictions, with some counties showing variable changes in stage status among their youth. Finally, Figure 4.2 illustrates that stages of initiation differed for smoking cigarettes, drinking, and using marijuana in the same sample of youth. It is critical to track not only 30-day and lifetime prevalence of use but also stages of initiation to understand how our prevention efforts may be affecting adolescents' stage status over time, especially for the move to Contemplation.

THE CONTEMPLATION STAGE FOR ADDICTION

Once individuals begin to consider engaging in an addictive behavior, they move into the Contemplation stage for addiction. Individuals in Contemplation are open to considering the positive and negative aspects

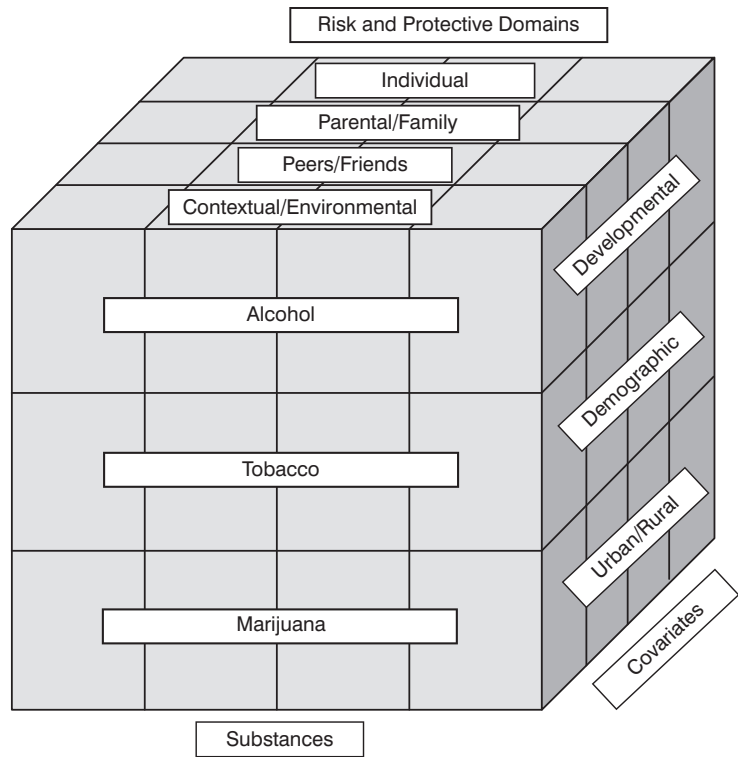


FIGURE 4.2. Matrix of influences.

of the behavior. They are amenable to listening to and thinking about advertisements and information about the behavior. Stories about how a famous athlete became involved in using cocaine or developed an alcohol problem may be interesting to those in Contemplation. Looking toward various role models to see how they deal with the addictive behavior, seeking information about how many peers engage in it, and asking questions about possible consequences are all more likely during this stage.

These activities do not occur necessarily within a concentrated period, nor are they always completely conscious. Even before they have a drink of alcohol, children in third and fourth grades have both positive and negative explicit expectancies and tend to identify positive drinking outcomes as more likely than a comparable group of students in seventh and eighth grades. These younger students also had less negative implicit attitudes toward alcohol than their older counterparts (Noel & Thomson, 2012). Importantly, implicit and explicit attitudes and beliefs can

change over time. For example, a 15-year-old male may look around one day and notice that two of his friends have begun to experiment with cigarettes. At that point he thinks this behavior is stupid. Then he notices more cigarette ads and how some of those people in the ads look interesting or “cool,” “chill,” or otherwise enviable. Several months later, he may see one of his teachers at a mall smoking a cigarette and be surprised but intrigued. After months or possibly years of these infrequent but important considerations, he finds himself out having some fun with one of these friends who smokes and asks to try one of those “cancer sticks.” The process is often a subtle one. More often than not, there is no single consideration or moment of truth but a building up of the pros for initiation and a lessening of the cons or negative considerations of the behavior (Hudmon et al., 1997).

Defining Characteristics

The tasks of the Contemplation stage of addiction are to gather information for weighing the pros and cons of engaging in the addictive behavior until a decision is reached either to move forward to Preparation or to return to Precontemplation. In Contemplation, the cognitive and experiential processes of change are engaged and influence the positive and negative decisional considerations about the addictive behavior. The individual takes in and processes images, messages, modeling, and personal experiences about drugs, smoking, alcohol, and gambling. Consciousness raising gathers important information and considerations. Self-reevaluation and environmental reevaluation compare and contrast the information about addictions with other salient and relevant information about the individual's life and current functioning. Personal experiences and vicarious experiences of peers who are positively or negatively affected by engaging in the addictive behavior create emotionally arousing experiences that contribute to decisional considerations. Societal prohibitions and norms engage the social liberation process of change, supporting the cons or paradoxically offering some pros for engagement to the more rebellious.

Decisional considerations shift back and forth, marking both serious consideration and ambivalence, and can move gradually or more precipitously either toward or against engagement. There are four potential outcomes for individuals in Contemplation who are processing all these considerations. The first would be to have the consideration shift solidly toward engagement and transition forward to the Preparation stage. The second would be to have all these considerations, experiences, and evaluations create a decisional balance firmly against engagement and supporting a transition back to Precontemplation. The third is to

have the decisional balance sufficiently tipped toward use to support experimentation, which in turn may become data for continued contemplation and decision making. Finally, the fourth is to remain in Contemplation and to continue gathering information with a decisional balance that is rather ambivalent and insufficient to support movement forward or backward in the stages of change. One can imagine that prevention messages would be received very differently depending on these experiences and outcomes.

Although behavioral processes of change and self-efficacy related to the addictive behavior are not as relevant in Contemplation as in later stages, there is a role for temptation. As the pros for engaging in the addictive behavior increase, individuals become more tempted to engage. An increase in temptation to try the addictive behavior accompanied by an increase in the pros for engagement creates an increased risk for initial use or experimentation (Werch & DiClemente, 1994). Confidence to avoid the behavior decreases as temptation to use increases for those who are moving ahead through the stages toward addiction.

The Contemplation stage can also include some initial experimentation with the addictive behavior. This experimentation offers a personal experience with the behavior that gets added to the information already in the decisional considerations. Initial experimentation seems to fit into this stage better than in the Preparation stage, since a number of individuals who engage in limited experimentation find information about the addictive behavior that shifts the decisional balance away from considering any additional use. If you talk to individuals who tried a specific drug once and never touched it again, they will tell you that they tried it and so disliked the experience that they never thought about doing it again. Sartor and colleagues (2010) found that subjective effects distinguished rates of progression to regular smoking in a large group of individuals ages 14 to 32. Those high on pleasurable response (with or without accompanying physiological response) had higher rates of progression to regular smoking than those low on pleasurable response (Sartor et al., 2010). In another study, youth who had weak executive control and heightened reward seeking in midadolescence were most prone to progression from experimentation. However, those with stronger control systems, even if they had heightened reward seeking, only engaged in occasional experimentation (Khurana et al., 2015). Data from a survey of eighth-grade students found that 30% of them reported that they had tried alcohol once or twice and were not planning to try it again (Werch, personal communication, November 20, 2001). This also can happen with substances like hallucinogens, where the altered state is so scary or so bizarre that the individual never wants to experience that kind of loss of control again. A bad first experience can be considered a

behavioral protective factor that interferes with the transition from the Contemplation stage to Preparation stage and prevents extensive experimentation or regular use. On the other hand, youth who have a good first experience may have to rely more on intact and operational control mechanisms to avoid progressing to regular engagement.

Initial experimenters, then, are best considered to be in Contemplation because many will not go on to engage in the behavior to any significant extent. However, initial experimenters whose experience with the drug or the behavior is positive, intriguing, or interesting will add this information to the decisional balance matrix, often tipping it in the direction of continued experimentation and possible initiation. This personal experience seems to be critical for moving forward into the Preparation stage. I remember hearing about research done many years ago indicating that individuals who become alcoholics tended to remember their first drink of alcohol, whereas other drinkers, who did not have a problem, would not. Several individuals with cocaine problems who I have seen in treatment have indicated that, even though they had tried other drugs and could keep out of trouble with these drugs, the first time they tried cocaine they knew they were in trouble and would become hooked. The first experience, then, is a critical element in the process of decision making that promotes movement toward becoming addicted.

Thinking and Making a Decision about the Addictive Behavior

In the Contemplation stage, the individual begins to develop the personal rationale that will support the move toward use and possible addiction. Constellations of positive and negative considerations begin to develop, but accurate information is often missing for many individuals at this stage. If you ask teens, for example, the risks of using cocaine or the socially acceptable reasons for using alcohol, you can access the set of concepts that they have put together about these behaviors (Bandura, 1986; Brown, Goldman, Inn, & Anderson, 1980; Dunn & Goldman, 1996). Teens find these concepts confirmed and disconfirmed on a rather regular basis using personal or anecdotal information. A 16-year-old girl is told that cocaine causes death and physical injury, even the first time you use it. When she begins to talk with several peers who have done cocaine several times and appear to be among the “healthiest” kids she knows, she begins to question not only the “facts about cocaine” but also the source of those facts. She then modifies her decisional balance in ways that make her more likely to experiment with cocaine. Many young adults believe smoking hookah is safe because the smoke is filtered by the water in the hookah pipe, which is not true (Akl et al., 2010). Medications are considered safe or less harmful because they

have been prescribed to someone, even if that someone is not the person using them. These beliefs, even if mythical, can shift the decisional balance toward experimentation and ultimately to engagement.

Active consideration of the behavior and initial experimentation appear important in the initiation of marijuana, according to research by Kandel and colleagues (Kandel & Davies, 1992). A longitudinal study of high school students contacted first in 1971 and followed for 13 years examined the onset of marijuana use and the progression to near-daily use. Interestingly, a very large percentage of this sample (78.4% of the men and 70% of the women) reported having used marijuana by the third follow-up in 1984 when they were ages 28–29. To study onset of marijuana use, these same researchers examined all subjects who were not using by ages 15–16 at the time of the first interview and looked for predictors of who would begin to use over the next 13 years. Because they were interested in social psychological processes of imitation and social reinforcement, there were no individual cognitive considerations like pros and cons included in this analysis. Factors that emerged as significant predictors of onset of marijuana use were high educational expectations, parental use of psychoactive drugs, and participation in delinquent activities. These factors increased the risk, whereas frequency of attendance at religious services decreased risk of initiating marijuana use. There were also some predictors that operated differently for males and females. For males, in contrast with females, a higher level of parental education decreased risk. On the other hand, closeness to parents decreased risk of initiation for females but not for males. Females seem to be influenced more by the number of friends using marijuana than are males. These findings seem to support a role for imitation and social influence. However, the differences between males and females seem to argue that it may not be the event or influences as much as the evaluation of the event by the individual that affects consideration and onset of use. Moreover, the majority (56.4%) of those who experimented with marijuana did not progress to regular use. These findings seem to support the importance of personal evaluations of social influences, which can affect decisional considerations in the initiation of addictive behaviors and interact with developmental tasks.

This personal cognitive evaluation process is often underestimated in the research on initiation. Adults, particularly those who have never left the Precontemplation stage for initiating an addictive behavior, assume that the initiation process in addiction is automatic, involving little or no thought. Because acquisition of many addictive behaviors occurs during adolescence, impulsivity and lack of thinking appear to be logical explanations. However, this is a rather naive position. Adolescents think. They do not necessarily come up with the same conclusions

as adults, however. I can remember some of my own thinking as many of my peers began smoking. I considered it and even took a couple of puffs at one point. However, since my father was a smoker who quit during my early adolescence, parental statements about the problems of cigarette smoking influenced most of my thinking. In fact, I felt pride that I would not smoke despite the influence of my peers. This seems to me a conscious Contemplation process and a decision to not use at that time. Although my initial adolescent Contemplation of smoking ended in movement back to Precontemplation, I moved into Contemplation again in my early 20s. This time I became a regular cigarette smoker. I convinced myself that smoking had some social merit and could be of value in my interactions with new groups of colleagues. The self-reevaluation and environmental reevaluation processes were critical to my Contemplation and decision making.

Although there are separate decisional considerations for each addictive behavior, there can be overlap, and there even seems to be a pattern to the initiation of multiple addictive behaviors, particularly those that involve substances (Kandel, 1975). Youth usually begin using alcohol, tobacco, or marijuana before initiating other substances. However, the “gateway hypothesis” does not seem to be about which substance is used first. Rather, as concluded by a large, longitudinal study conducted across 17 countries, “the ‘gateway’ pattern at least partially reflects unmeasured common causes rather than causal effects of specific drugs on subsequent use of others” (Degenhardt et al., 2010). Once an individual has evaluated one addictive behavior positively, it is easier for him or her to use some of the same positive considerations (exciting, excellent, risky, cool, etc.) for other behaviors. In our HABITS (Health and Addictive Behaviors: Investigating Transtheoretical Solutions) laboratory at the University of Maryland, Baltimore County, we have examined patterns of initiation among more than 4,000 adolescents who reported using alcohol, tobacco, and marijuana in the past year (Delahanty, DiClemente, Van Orden, & Fiedler, 2012). There were many different patterns. Most of these adolescents who reported use of all three substances said that they used alcohol before the other two, and there was a significant number who started to use all three substances in the same year. The gateway addictive behavior or drug is not one substance but more likely a function of this drug being the one that was more appealing or accessible. However, once an individual has progressed through the stages of initiation for one substance, it may be easier to do so for other substances.

In addition, if they then begin to build social networks of users, the likelihood is greater that peers who engage in one addictive behavior will model others and offer positive role models for engaging in a second or

third behavior. Although individuals often choose not to follow these peers and engage in these other behaviors, this process of contamination is important to understand. Unfortunately, it has not been studied extensively. For example, expectancies about the benefits for engagement in multiple addictive behaviors have not been explored. Numbers of close peers that engage in other addictive behaviors has not been evaluated. Most studies focus on the actual engagement in multiple behaviors (experimental use, abuse, dependence) and do not examine how participants are thinking about these behaviors (Glantz & Pickens, 1992; Winters, Fals-Stewart, O'Farrell, Birchler, & Kelly, 2002). Notably, in our study of Maryland adolescents the stage of initiation for one substance was significantly related to initiation stages for other substances. Almost 90% of youth in Precontemplation for smoking were also in Precontemplation for marijuana use. However, over 60% of those in Maintenance for regularly smoking were also in Action or Maintenance for using marijuana. Moreover, the vast majority of those in Maintenance for smoking initiation not only reported drinking alcohol but also engaged in binge drinking (DiClemente, Delahanty, Garay, et al., 2010). In all our analyses of these surveys, movement forward in the stages toward regular use for one substance was related to movement forward for other substances. Thus it is the process of initiation, rather than the substance itself, that seems to be the "gateway" to starting individual and multiple addictive behaviors.

The Context of Change and Contemplation

The context of change is filled with risk and protective factors that influence decisional considerations in the Contemplation stage. The same protective factors that help keep people in Precontemplation can provide important information and experiences during Contemplation. Academic achievement, positive relationships with adults, prosocial attitudes and activities, self-confidence, and healthy peer networks offer positive reasons for not engaging in the addictive behavior. They also provide support for a negative evaluation of the behavior in terms of its ability to add anything of value to the individual's life. On the other hand, risk factors like low self-esteem, problematic peers and relationships, and lack of achievement and prospects for success in life contribute to more positive considerations for engaging in the addictive behavior. The reinforcing nature of the addictive behavior can be particularly appealing to one who is mired in a negative and unrewarding context. Thus the context of change brings multiple influences to bear on decision making that can foster forward movement toward addiction or offer positive alternatives that promote lack of interest.

One of the central mechanisms responsible for developing addictive behaviors is peer or social influence. We are learning more about how social influence operates (Bandura, 1986; Cialdini, 1988; Werch et al., 2000). Social influence is not simply a matter of being coerced by peers into using a substance. How modeling by peers affects an individual is subtle and complex. Bandura (1986) describes a comparator process whereby the individual compares input from the environment with internal standards and norms. According to this theory, each of us uses experiences of society and norms that we observe, adds other considerations, and creates a set of personal norms and expectancies about our behavior. Influences from others to behave in a certain way are processed through this screen of personal norms and values. In fact, deviant peers can be moderated by parental influences, which supports this interaction between values and social context (Van Ryzin et al., 2012). In making decisions, it seems everyone develops a personal balance sheet (Janis & Mann, 1977) that is a mixture of environmental influences and personal considerations. Vulnerability to social influence operates in this context. Knowledge, attitudes, and beliefs interact with personal experience and social influence to create a dynamic matrix that develops and shifts during an individual's life.

In addition, decisional considerations relating to substance use are influenced by personal self-evaluation. The more negative this self-evaluation, the greater is the susceptibility to social influences (Schinke, Botvin, & Orlandi, 1991). Low self-esteem, low self-confidence, and a lack of a sense of personal control increase the need for social approval and so increase the influence of individuals who are models promoting a deviant but attractive lifestyle. Social influences pass through the screen of personal Contemplation to become a part of the decision making. These are the active ingredients that contribute to a decision to use or not to use.

Experimentation initiates the physiological and behavioral experiences that influence the decision whether to continue engaging in the addictive behavior. The first experimental use becomes a marker event. One-time experimenters are very different from frequent experimenters who ultimately move into the Preparation stage. For the individual whose expectancies and reflections make her vulnerable to social influence, the press of peers engaging in the addictive behavior coupled with the positive aspects of the first experimentation promotes continued experimentation. Once the first experimentation opens the way to continued experimentation and multiple use, there is a decision to engage that indicates movement of the individual from Contemplation into the next stage of initiation, Preparation, which we discuss in the next chapter.

PREVENTION ACTIVITIES: TARGETS AND GOALS

Prevention in the arena of the addictions has multiple meanings and interpretations. For some it means stopping an already existing problem, such as regular cigarette smoking, to prevent future illness. For others, prevention signifies eliminating any experimentation with addictive behaviors. Still others consider prevention the process of instilling attitudes that prevent thinking about engagement in any health-threatening addictive behavior. The stages of becoming addicted offer a way to segment the process and hence the target of prevention. Together with the other change dimensions of the TTM, they can sharpen the focus of prevention efforts. Specific prevention strategies will be offered for individuals in Precontemplation and Contemplation stages of initiation after the following overview of prevention types and definitions.

TYPES OF PREVENTION

The traditional view of prevention was developed in the context of medical diseases. It consisted of a tripartite division of prevention based on the goals and targets of intervention efforts: primary, secondary, and tertiary prevention. These types of interventions more recently have been relabeled according to the type of population targeted by the intervention (population based, at risk, and currently affected). A discussion of these three types of prevention can set the stage for understanding how to integrate prevention efforts with our process of change perspective.

Population-based prevention, once referred to as primary prevention and sometimes called universal prevention, aims to protect individuals who have no signs or symptoms of the disease. These individuals usually have minimal direct exposure or vulnerability to a particular disease at the present time. Population-based prevention looks at entire groups of individuals, regardless of whether any risk factors are present, and attempts to inoculate the population against the disease. Some good examples of such programs would be fluoridation of the water supply to prevent tooth decay or vaccinating all infants and children to prevent polio or smallpox. In many of these cases, even though the likelihood of contracting the illness is small, prevention efforts are deemed worthwhile because the disease is so devastating. For addictive behaviors, population-based prevention attempts to educate or inoculate the total population against experimentation, engagement, use, and/or misuse of addictive behaviors.

Interventions targeting *populations at risk*, also known as secondary

or indicated prevention, concentrate on individuals with one or more risk factors for developing a disease, who may have been exposed to the disease, or who may have initial or prodromal signs of the illness. The goal of prevention for those at-risk individuals is to protect them from developing the condition or to provide an early intervention before the problem can develop fully, in order to produce the best possible prognosis. Examples of this type of at-risk prevention include offering tetanus shots to individuals who have cut themselves on rusty metal, immunization programs for individuals exposed to specific viruses (TB shots for those who work in medical settings), and screening for particularly vulnerable individuals (mammography for women over 50 or with a family history of breast cancer, and colorectal cancer screening for older males). Prevention for those at risk for addiction would target individuals with specific risk factors (e.g., parental substance use) to try to stop them from engaging in the addictive behavior or, at minimum, from developing a use disorder.

Prevention with *afflicted populations*, sometimes called tertiary prevention, is characterized by interventions that prevent deterioration or provide harm reduction. Critics claim that these interventions are not truly preventive because they focus on individuals who already have the illness or disease. However, the prevention goal in these interventions is to provide as much of a “cure” as possible for those already afflicted with an illness or, at minimum, lessen the impact of the condition on other physical systems. For example, most common cold remedies are designed to relieve common symptoms while the cold virus runs its course and is defeated by the body’s immune system. Treatment for symptom relief can be conceived of as prevention because it does prevent some of the more debilitating effects of the illness and allows the person to function better at work or home. Usually interventions, like diabetes management, implemented earlier in the illness result in a greater probability of preventing associated problems. Prevention with afflicted populations inhibits progressive deterioration and debilitation and is essentially an early intervention or harm reduction strategy to be used when the problem has already emerged.

Clearing Up Confusion about Types of Prevention

Using the framework of the TTM, we can examine the tripartite prevention perspective in a new light and discuss the goals and efforts that would characterize each type of prevention.

Population-based prevention activities should be directed at individuals in the Precontemplation and Contemplation stages of becoming

addicted. *At-risk prevention* activities should target those individuals who are in the Preparation and initial Action stages of addiction. When the focus of the intervention is on those in the Action stage who already engage excessively in the behavior (drink or gamble) and the goal is to promote responsible and controlled use, prevention addresses an at-risk population and tries to facilitate a transition to maintained, self-regulated use. However, individuals in Precontemplation or Contemplation who have excessive risk and/or minimal protective factors also could be singled out and targeted with at-risk prevention programming (see Figure 4.3).

If the program targets problem drinkers, as many early intervention programs do, prevention is reaching *already afflicted individuals* in the Action stage for becoming addicted. Individuals already well into the Action stage of initiating an addictive pattern of behavior should be considered already afflicted and need programs that could prevent movement to a maintained addiction. However, once individuals are well into the Maintenance stage, programming should shift to using the stages of recovery. Interventions would be needed to meet these individuals wherever they are in the process of recovery. Diversity of targeting and programming is enhanced by using the process of initiation perspective and focusing on preventing transitions forward through the stages of addiction or, once addicted, promoting movement through the stages of recovery.

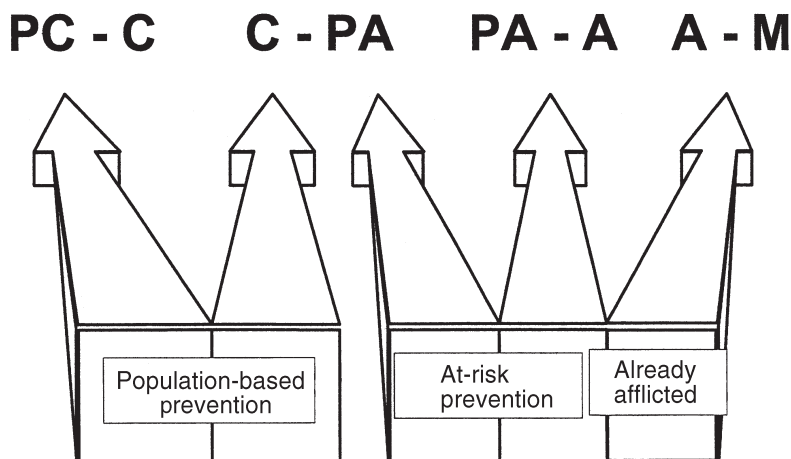


FIGURE 4.3. Types of prevention and stage of addiction transitions.

POPULATION PREVENTION FOR PRECONTEMPLATION TO CONTEMPLATION TRANSITIONS

The transitions identified by the stages of change provide an interesting new way to envision and direct prevention interventions. Universal or population-based prevention is usually used to target the first two stages of initiation. Other types of prevention will be discussed in greater depth in the next two chapters. The goal of population-based prevention of addictive behavior is largely to keep individuals in Precontemplation and to prevent forays beyond the Contemplation stage. If movement into Contemplation occurs, the goal is to keep any consideration or experimentation with the behavior from developing into a positive risk–reward analysis and from entertaining a decision to engage. The goal of any prevention program that encourages consideration of the negative aspects of the addictive behavior is to move individuals back to Precontemplation and inoculate them against concerns that they might be missing something by not considering the addictive behavior and against future interest in the behavior.

Reducing positive considerations and increasing negative decisional considerations for engaging in an addictive behavior, as well as efforts to promote protective undermining risk factors, are key strategies for population prevention. These strategies include supporting social skills, problem solving, decision making, self-control, and self-esteem. These types of prevention activities are designed to influence decisional considerations about utility or need for engagement. The goal is to prevent movement from Precontemplation to Contemplation and beyond. Ideally, individuals in Precontemplation for any engagement in the behavior could be kept there with messaging and social norms and the adequate accomplishment of development tasks (Masten et al., 1995). Individuals entering Contemplation could be helped to develop decisional balance considerations that would be tilted firmly against adoption to keep them from progressing toward Preparation. Ultimately, this decisional balance would protect the individuals from moving out of Contemplation and be instrumental in moving them back into the Precontemplation stage, marked by no current serious consideration of engaging in the behavior in the next year.

Keeping individuals and populations in the early stages for adoption is not as easy as it seems. To a greater or lesser extent, most people in our society will be introduced to a variety of addictive behaviors. In fact, with the reach of social media and availability of information, keeping young children ignorant of the lure of alcohol, drugs, nicotine, and other types of addictive behaviors may not be possible in our current society. One study looked at alcohol expectancies in young children and found

that they have similar expectancies that alcohol can enhance enjoyment and socializing, and that positive expectancies increased especially in the third and fourth grades (Miller, Smith, & Goldman, 1990). However, that does not mean all youngsters will automatically move into the Contemplation stage for engagement and addiction. Many children will stay in Precontemplation for most addictive behaviors throughout their childhood and adolescence and reach adulthood in that same stage of Precontemplation. Legal and socially acceptable addictive behaviors, like gambling and drinking alcohol, often are an exception. The legalization of marijuana can be expected to create a more favorable decisional balance that could encourage experimentation and social use.

How Much Is Too Much and What Is Not Enough?

A critical question is how much, if anything, should be done to influence those in Precontemplation for initiation, especially when they are children and young adults. Individuals in Precontemplation already are not thinking about or considering engaging in the addictive behavior in the foreseeable future. They could just be left alone. However, as described above, the problem with a prevention strategy of benign neglect is that naive individuals in Precontemplation would be ignorant about the behavior and open to inaccurate information or marketing information because they lack actionable information. Whenever confronted by an event or situation that introduces them to the addictive behavior or influences them to try it, they may have few protective reasons or resources to support them. What happens when young adolescents in Precontemplation for smoking cigarettes see billboards and other advertisements about the wonderful benefits of smoking certain brands of cigarettes? If they are not armed with some realistic, negative considerations of this behavior, they may be more vulnerable to the influence of the advertising. Doing nothing and hoping children continue to be ignorant of or uninterested in all addictive behaviors seems a high-risk strategy, particularly when the behavior is highly visible or promoted in the immediate environment or society.

However, inundating youth with information about all the dangers of every addiction early in their childhood also seems to be a risky strategy. Universal prevention programs that target very young children and give them too much information about the addictive behavior may end up promoting progression toward initiating the behavior. For example, some well-intentioned programs propose to teach all first and second graders about the dangers of drugs in general and detailed risks associated with specific drugs. In many neighborhoods and schools, these children will not have any significant exposure to drugs for several more

years. What the drug prevention program proposes to do is to provide information that will protect the child in the future. However, they may be introducing the child to consider the addictive behavior well before the natural environment would and before the child has the developmental capacity to process subtle messages. Even though the message is negative, the reality is that these children are being given specific, detailed information that could make them more knowledgeable and possibly more open to experimentation. Providing too much specific information or knowledge and offering this information too early may backfire as a universal prevention strategy, especially for young children. On the other hand, if a child could be exposed to the addictive behavior as early as first or second grade, this type of program may help inoculate these children with accurate information and realistic attitudes. With that said, prevention programs focused on these particularly at-risk children would not be population based; rather, it would be an indicated or secondary prevention program.

Primary, population-based prevention programs always tread a narrow line between under- and overexposure. They must provide the general population with attitudes, experiences, and skills to remain committed to not progressing through the stages of initiating an addictive behavior. At the same time, prevention intervention messages and information need to be developmentally appropriate, generationally and culturally sensitive, tailored to the specific addictive behavior, and credible.

Population Prevention Must Be Tailored to Age and Stage

A recent meta-analysis of school-based programs offered a detailed analysis of prevention program components and their effectiveness based on the age groups of the youth across 241 studies. Universal, school-based interventions differed in effectiveness by age group, and for the younger children the most important components were skills development and identifying healthy alternatives, not focusing on substance use. Prevention programming differed also for different substances, such as tobacco, alcohol, and marijuana. Middle adolescence was a particularly difficult period for prevention, and training in substance refusal skills had a negative influence. Social influence approaches were more important for later adolescence (Onrust et al., 2016). Considering these findings, it seems particularly important to track age as well as stage of initiation in designing prevention programs.

Population-based prevention programs must be designed to match the developmental status of the target populations. Attempts to develop fine-grained discriminations in the attitudes and beliefs of very young children are simply misguided. The messages must be simplistic, clear,

and rather dichotomous. At early ages, children understand black and white, not shades of gray. Simplistic messages can ultimately backfire, however, as children become more mature and their thinking becomes more differentiated. To remain developmentally appropriate and keep pace with the internal thinking processes, prevention messages also must shift or adapt as the child grows in sophistication. Thus, no simple or single prevention message could keep children of all ages in Precontemplation for engaging in an addictive behavior.

We must remember that what is negatively valenced in one generation often becomes valued in the next. In my relatively short lifetime, crewcuts and head shaving have been viewed as punishment, a mark of military service, a sign of radical right-wing movements, and simply an acceptable hairstyle. The yin and yang of social behaviors make prevention of specific behaviors and styles of living rather tricky, particularly if the messages are perceived as one generation telling another generation what to do and how to live.

The narrow line between preventing and promoting an addictive behavior is particularly tricky for drug use, cigarette smoking, smokeless tobacco use, gambling, and eating disorders. Each of these has carried both negative and positive valences at different points in the history of the generations. Positive views as well as the prevalence of these behaviors have risen and fallen over the past 100 years here in the United States and around the world. At a societal level, a moderately negative view of the behavior may be the best protection against developing addictions by discouraging interest in initiation without stirring rebellion, thereby making the move from Precontemplation to Contemplation less probable.

Of course, the messages and the approach need to vary depending on whether complete abstinence or responsible engagement is the goal. The approach of population-based prevention for alcohol consumption should differ from that used for heroin use. If the behavior is legal and one that most of the population will ultimately engage in, like drinking beverages containing alcohol or gambling, universal prevention should emphasize the when, where, and how of legal, responsible, self-regulated use. Prevention programs targeting alcohol should promote attitudes and behaviors that would keep alcohol a beverage among other equally acceptable and desirable beverages and offer some specific guidelines for use that could be clearly contrasted with use disorders, misuse, and dependence. For heroin use, on the other hand, population prevention should attempt to dissuade experimentation or use and probably not focus on the distinction between use and misuse, as would be done with alcohol or gambling. However, responsible use of opiates for pain medication should be emphasized by prevention professionals, providers, and prescribers.

Culture and Credibility

The decision of how to handle each potentially addictive behavior involves cultural and societal considerations. Interventionists need first to understand the current culture and attitudes toward a specific addictive behavior in order to be culturally sensitive. Then they can develop programs that would fit into that perspective so that they can counter problematic societal attitudes and create protective ones. The place of the addictive behavior in a society also influences population prevention. Smoking has a different place and role in various countries and cultures. Whether men and women smoke is largely culturally determined. Some Central American countries have legalized marijuana use but frown on dysfunctional use (Page, Fletcher, & True, 1988). In the United States, legal gambling has gone from being a limited behavior confined to specific locations (e.g., racetracks and casinos) to a behavior that is as close as your local food mart and a major source of revenue for state budgets. Obviously, universal prevention messages must recognize the realities of the behavior in the society if the messages are to be at all credible (see Figure 4.4).

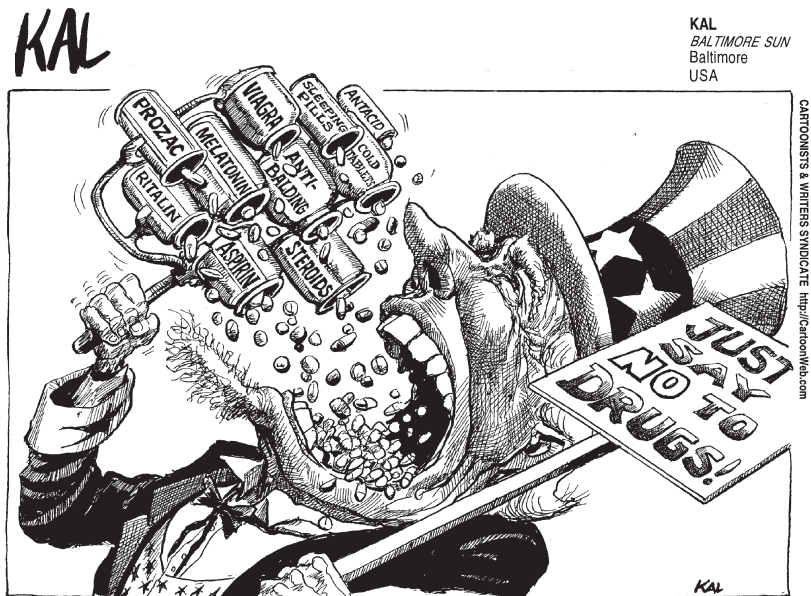


FIGURE 4.4. Mixed messages and the prevention of addiction. Reprinted by permission of Kevin Kallaughner (KAL), Cartoonists & Writers Syndicate/cartoonweb.com.

Credibility is another important issue in population-based prevention programs. Messages that are not solidly based on accurate information and current knowledge can be discarded rather easily when an individual encounters information from peers that contradicts and invalidates the prevention message. Although even more important with at-risk prevention, credibility is critical for population-based prevention programming as well. Messages that exaggerate the potential dangers of a behavior (e.g., cocaine will kill you on the first use, or marijuana/cigarettes always lead to using other, illegal drugs) can easily be discounted once any exceptions are encountered either among peers, adults, or role model media figures. In fact, during the teen years, adolescents become very critical of parental messages. Self- and environmental reevaluation are constantly processing messages from authority figures. It is developmentally appropriate for adolescents to challenge these messages and to argue the opposite. Messages that are too general or exaggerated are particularly vulnerable to this onslaught. Even well-founded information has a difficult time in this environment, but it has a better chance of surviving the adolescent self- and environmental reevaluation than do exaggerated scare tactics. Cultural, developmental, and societal sensitivity must be part of developing universal prevention messaging.

SUMMARY

To summarize, the path of initiation begins with an individual or even an entire population being in Precontemplation for adoption of an addictive behavior either by default or design. Precontemplation represents the lack of any serious interest in or consideration for engaging in an addictive behavior due to either a naive ignorance or a more conscious decision. Moving from Precontemplation to the Contemplation stage, wherein an individual considers the pros and cons of engaging in the behavior, occurs for many individuals depending on societal norms and influences, exposure, and availability. This movement out of Precontemplation for initiating addictive behaviors, especially those involving drug and alcohol consumption, occurs primarily during adolescence, when these high-risk and mind-altering behaviors are particularly attractive. Adolescents are also facing issues related to identity development and the multiple problems associated with this development. Family issues, social influences, and peer models also play an important role in movement out of Precontemplation and during the Contemplation stage. Initial experimentation seems to mark a shift in the Contemplation process, either advancing it toward addiction or reversing direction.

Continued experimentation indicates that the decisional balance has

shifted and that the addictive behavior no longer has enough of a negative valence to be avoided, although engagement may be very sporadic. This shift in the decisional balance and continued experimentation lead the individual into the Preparation stage of addiction and more regular experimentation and repeated use. As the experimentation continues, it brings personal and physiological incentives as well as social influences and pressure that can move the individual into and through the Preparation stage, which is described in greater detail in the next chapter. Successful negotiation of the tasks of the first two stages (increasing interest and relevance, positive considerations and supportive concerns and contexts) increases the probability that individuals will move toward extensive experimentation. During this process of change whereby individuals move through the stages of acquisition for this single behavior, important mechanisms of change and the context of the individual's life play important and varied roles influencing progression or regression through these stages.

Preventing individuals from moving out of Precontemplation is an important goal of universal prevention but often involves moving individuals and groups into serious consideration of specific addictive behaviors in order to convince them to remain intentionally in Precontemplation. However, promoting considerations that would engage decision making and attempt to tip a decisional balance is challenging and tricky. It is also not a zero-sum game since there are marketing forces that aim to increase engagement in these addictive behaviors and have the goal of developing interest in adoption of various addictive behaviors, from lottery advertisements, to tobacco and alcohol promotion, to illegal drug pushers. Universal prevention efforts must be sensitive to experiences and culture of the targeted population and offer credible, developmentally tailored and titrated messages that first do no harm. Then these messages need to offer important, relevant considerations, alternative skills, and satisfying activities that would tip decisional consideration and shift implicit attitudes against experimentation and engagement in the addictive behavior.

CHAPTER 5



Preparation

The Critical Transition Stage from Contemplation through Experimentation to Regular Use

Getting consistent access and making the addictive behavior a priority are needed to support regular use or engagement.

PREPARING FOR REGULAR USE

The Preparation stage for initiation is marked by continued experimentation and often a gradual but deliberate setting of the stage for regular use. Whether that pattern of use becomes a “social,” moderated one or a less controllable one, it is a pattern of continued use despite early warning signs of problems, excessive use, and/or loss of control that marks the end of Preparation and the beginning of the Action stage of addiction. Preparation is a transitional stage, and the direction it will take is not predetermined. When experiences with the behavior deliver positive physiological and psychological reinforcements, the pros of engaging in the behavior continue to grow and the cons diminish. “If something feels so good, how can it be bad?” is a typical comment of someone moving through the Preparation stage. At the same time, when there are few negative consequences associated with the behavior, it becomes harder to believe all the negative statements by parents, school health programs, and public service announcements. During the Preparation

stage, protective factors are being undermined while positive experiences are enhancing the value of the behavior. Continued shifting of the decisional considerations to favor engagement sets the stage so that both cognitive and affective evaluations support acquisition of regular use regardless of feedback, consequences, or admonitions. Risk factors of deviant peers, impulsivity, and lack of parental monitoring help accelerate the movement through Preparation into Action. However, when engagement or use is disrupted by significant events, movement forward can be halted. These events can be personal, social, or environmental (e.g., parental monitoring, legal consequences like a DUI, peer pressure, or a “bad” experience). When they occur, the individual can return to a more controlled pattern of engagement or stop the behavior and regress to an earlier stage of initiation.

Defining Characteristics

The Preparation stage of change represents a bridge on the road to addiction from the positive decisional considerations supporting engagement that were established in the Contemplation stage to the repeated pattern of problematic involvement in the addictive behavior that characterizes the Action stage of initiating addiction. The initial experimentation of Contemplation leads to a decision that supports, explicitly or implicitly, continued engagement in the addictive behavior. During Preparation, the decisional balance is tipped toward engagement, and the individual is open to experimenting. Initial experimentation becomes more frequent in Preparation and becomes more patterned in Action. More thought is given to the challenges of accessing and engaging in the behavior as well as how to avoid detection when the behavior is illegal or prohibited. Decisional considerations supporting engagement become stronger and create a commitment to engage in the behavior as opportunity arises. Temptation to use increases, and there is a growing sense of confidence that the individual can engage without any or many perceived serious consequences. Confidence and ability to abstain from engaging in the behavior when presented with various cues or situations decreases. As individuals complete the Preparation tasks of planning and commitment to engage, they move forward in the process of becoming addicted and enter the Action stage.

During Preparation, there is also increasing use of behavioral processes of conditioning, stimulus generalization, and reinforcement as the individual becomes more extensively exposed to the addictive behavior. Cues in the environment become associated with engagement in the behavior. Primary reinforcers associated with the behavior increase. Initially there seem to be lots of positives and pleasure in the periodic

engagement. As the individual becomes increasingly exposed to the addictive behavior, the brain begins to make a more serious contribution to continued use. As one begins to move forward on the path toward Action, neuroadaptation begins to kick in. The brain adapts to the exposure and begins to react so the behavior continues to feel good and tolerable without many negative side effects. Secondary reinforcers (the rush of risk taking; the admiration of important peers; feeling independent or rebellious; defeating parental control) that are related to the engaging in the addictive behavior begin to support continued use. The stage is being set for a more regular, repeated engagement that can become a pattern of behavior.

At any point in the Preparation stage the individual may have negative experiences or consequences that will force a reconsideration of the decision to engage. At that critical point the individual may go back to weighing the pros and cons, marking a return to Contemplation, or she may decide to stop engagement completely and return to Precontemplation. However, if the commitment and reinforcement continue, the individual begins to develop a plan of how to include this addictive behavior in his or her life. Beginning to engage in a repeated manner despite experienced or potential negative consequences, so that the excessive engagement in the addictive behavior becomes patterned and habitual, marks the transition into the Action stage of addiction.

Experimentation and Early Engagement in the Addictive Behavior

We have some pieces of information about starting an addiction that can help us get a clearer picture of important aspects of the Preparation stage. A serious flirtation with the behavior contributes toward making a commitment to including this behavior as part of the individual's life. There have been many studies to confirm this relationship. Laurie Chassin and her colleagues (Chassin, Presson, Sherman, & Edwards, 1990; Chassin et al., 2000) have found that even infrequent experimentation in adolescence doubles the risk of becoming an adult smoker. Although engaging in the behavior, even at an experimentation level, is a good predictor of continued use and later use, behavior alone is not the only predictor.

Among preteens and adolescents, experimental use is part of a complex picture. There are differences between current substance abusers classified as drug abusers before age 18 compared with a group diagnosed after 18. For the early-onset group, behavioral adjustment problems, antisocial tendencies (i.e., problems following societal rules), and hyperactivity are risk factors for initiation (Pandina et al., 1992; Tarter, 1988). The early-onset group also has more school performance

problems, a central task of the adolescent years (Tarter & Mezzich, 1992), and problems in executive cognitive functioning (Giancola & Tarter, 1999). Weak executive control and heightened pleasure combine to support early progression in drug use (Khurana et al., 2015). When connected to family disruption and adjustment problems, the risks of becoming addicted increase (Piko & Balázs, 2012). Actual parental substance use and modeling becomes more important than parental admonitions (Ebersole, Miller-Day, & Raup-Krieger, 2014).

Recent research has confirmed these findings and demonstrated that risk and protective factors operate somewhat differently depending on developmental age and maturity of the individual (Sussman, Arriaza, & Grigsby, 2014). Substance use before age 13 is a significant predictor of use disorders in later life. There are subgroups of high school students that clearly show increasing and decreasing patterns of use over time, illustrating that the process of initiation is not unidirectional (Brooks-Russell et al., 2015). Although many of these studies segment individuals by age and whether they used substances in the past 30 days, few studies segment the population in terms of stages of initiation so that they can track the progression of population and individuals through the process. Moreover, they do not specify whether an individual is a naïve never-user, an exposed individual with a limited use history, or more experienced user. Individuals in Preparation usually come from the exposed or experienced groups since the decision and commitment to continue comes after the first use or experimentation.

How can we understand the addiction pyramid, where severe use-disordered individuals represent only a small percentage of the larger group of individuals who have experimented? Preparation represents a fluid stage of change. Many of the individuals who experiment with a substance, for example, have decisional balance considerations that are not that strong, so negative experiences or consequences quickly dissuade them from moving forward. For some, difficulties obtaining the substance or accessing the behavior (e.g., getting into the casino) provide barriers that they do not have the commitment to overcome. Moving from an infrequent experimenter to a more regular user requires adequate access and resources as well as time and energy. It also requires a freedom from other competing activities and interests that allows the individual to engage in the planning and commitment needed to move forward in the process of initiating a regular pattern of use that ultimately can turn into a use disorder.

The Context for Use

How can we understand risk factors in light of the stages of initiation and the context of change? It is becoming clearer to clinicians and

researchers in the field that a multivariate and multicomponent array of genetic, individual, family, and social influences, and interactions among these, is needed to explain adoption of addictive behaviors (Guerrini et al., 2014; Van Ryzin et al., 2012). Social learning and social cognitive theory (Bandura, 1986), as well as a social control model (Catalano & Hawkins, 1996), have been useful for understanding the phenomenon of initiation because they combine environmental influences with behavioral experiences and self-regulatory mechanisms in an interactive, mutual causality. Age is also an important factor since risks interact with developmental stage. Risk and protective factors as well as prevention interventions vary in impact depending on age (Lopez-Leon & Raley, 2013; Onrust et al., 2016). Although it is difficult to isolate contributory factors in an interactive model, it is important to discuss them.

Researchers have examined the ontogeny of substance use across individuals in order to find the common elements that predict substance abuse. Their conclusion was that “the transition from use to abuse to dependence, reflecting a progression of severity, is actually highly individualized and is invariably not a linear process” (Tarter & Mezzich, 1992, p. 154). All the preceding predictors create a probability estimate for initiation that never accounts for all the variance. For example, as just mentioned, attention-deficit/hyperactivity disorder is a risk factor for the development of alcohol and substance use disorders. However, although the odds of developing any substance use disorder are significant and high (odds ratio of 1.47 or a 47% increase in the odds), many hyperactive children do not develop use disorders (Wilens et al., 2011). Parental alcohol problems are associated with the increasing probability that the individual will develop drug abuse or dependence, yet most individuals with histories of parental alcohol problems do not develop abuse or dependence (Cadoret, 1992).

Another instructive series of studies have attempted to prevent experimentation and use of tobacco, alcohol, and marijuana using a variety of individual and system-focused (school, family) programs (Danzer, 2013). One large study used social development theory and an array of multilevel strategies during elementary school to prevent experimentation and use in middle and high school and found no effect on experimentation and a modest effect on levels of engagement in grades 6–10 for alcohol and marijuana (Brown, Catalano, Fleming, Haggerty, & Abbott, 2005). Experimenting with these substances may be very difficult to prevent, encouraging some to propose that intervention efforts should focus on misuse and not experimentation. Thus Preparation becomes a critically important stage for intervention. The tasks of this stage (commitment and planning for use) will determine whether the

initiation process proceeds or is discouraged and moves the individual back to earlier stages. If events or interventions are successful in interfering with initiation, individuals in Preparation will move back to just considering or, better yet, back to the protection of Precontemplation.

The path through the Contemplation and Preparation stages of addiction is a winding one with no predetermined outcome. For each individual, the confluence of family, environmental, and peer influences interact with personal views, norms, and expectancies to create the intricate cognitive processing of both explicit and implicit attitudes and information that can lead to experimentation (Noel & Thomson, 2012). Experimentation brings the individual into direct, firsthand experiential knowledge about the personal effects of the addictive behavior. The influence of the behavior itself begins to play a major role as the individual moves through the Preparation stage. The vagaries of this path through the early stages of initiation are best illustrated by looking at two fictional examples.

Sally Struggle, a 16-year-old high school sophomore who is a C student, has always had trouble with academics. She had to repeat an early grade and has always wanted to appear older than her chronological age. Her parents, Sid and Samantha, have serious marital problems and argue in front of Sally. She has two older brothers who have been somewhat overprotective of their little sister. Since age 14, Sally has dabbled with cigarettes and found a group of friends who are risk takers, older, and get in trouble with the law for vandalism. During the past 6 months, several friends have begun to use cocaine when they go out on the weekend. Sally has thought about trying cocaine but avoided any experimentation until last month. During the past month, she did break down and use twice. She is currently considering using again this weekend and spending more time with her user friends since they are more “fun” to be around.

Suzy Smart, on the other hand, is a sophomore who is one year younger and is a B+ to A student. She is the oldest of four children, and her parents argue about finances but in general have a solid relationship. Recently, Suzy has been having a great deal of conflict with her parents, marked by her rebellious stance about wanting to date an older boy who is 18 and a senior. She has been sneaking out of the house to see him because her father has forbidden her to go out with him. During the past month, she has been out with him and some of his friends, where they have been using cocaine. Suzy has taken a taste of the cocaine on two occasions. She is about to sneak out again this evening, telling her parents that she will be at a friend’s house. There is a party at the apartment of a close friend

of her boyfriend. She knows that they will have some cocaine there. She is considering what will happen at the party.

Sally and Suzy represent two somewhat parallel paths into the Contemplation stage for cocaine use, and both seem to be entering the Preparation stage. Sally's course seems a bit more gradual and less influenced by the single peer factor of a new boyfriend. Sally's use of cigarettes may also influence her decision making because she has already been breaking rules of conduct regarding substances. Moreover, the marital problems in the family probably have curtailed communication and parental monitoring and represent complicating problems in the context of change. From both these perspectives, Sally seems at greater risk for developing use and potential abuse and dependence.

It would be difficult, however, to predict the immediate decision of either Suzy or Sally. Both could easily move into the Preparation stage and move into some pattern of regular use. Once experienced, the highs of the cocaine use become another influencing factor, especially if accompanied by sexual tension or pleasurable activities like a party. Physiology and psychology will combine in the Preparation stage to influence use. Because Suzy has fewer problems and more resources, it would be logical to predict that she would have a lower probability of developing problems. Such a prediction would be supported by the literature. However, do not put the entire bankroll on that bet. Individuals like Suzy often develop the more serious problem. The interaction of factors come together in a rather unique way for each individual; that interaction results in the movement from Contemplation to Preparation and then to Action.

We would need to know much more about the thinking and evaluations of both Suzy and Sally to be able to understand this movement. An in-depth exploration of their attitudes and decisional considerations and the reinforcement value they place on various considerations would help to make our predictions more accurate. Each adolescent's personal evaluation as well as their thoughts and decision will influence the journey of initiation. It is also precisely at this point that the cognitive/experiential processes of self-reevaluation, social liberation, emotional arousal, and environmental reevaluation become connected to the behavioral processes of conditioning and reinforcement in the experimentation. The complex interaction among these processes can help predict the probabilities of either Sally or Suzy using drugs.

These examples highlight three important aspects for understanding initiation of addiction. The first is that engagement in the addictive behavior is not the only thing that contributes to the prediction of more serious involvement; additional considerations provided by contextual

problems both complicate and contribute to the process of change. The second is that specific decisional considerations related to the addictive behavior provide critical information for the prediction of stage movement. The third is that no matter how much we are able to increase predictive ability, there will always be some uncertainty in the equation because the shifts from the one stage to the next depend on unique personal considerations and individual decision making that are constantly changing.

We need probabilistic predictions, not absolute, deterministic perspectives, to accommodate the process of initiation of an addictive behavior and to increase our ability to predict addiction. Fortunately, some modeling approaches enable us to imitate the complexity of the initiation process (Collins & Horn, 1991; Richmond-Rakerd, Fleming, & Slutske, 2016). Moreover, the importance of the contextual risk and protective factors will vary depending on whether one is trying to predict the transition from Precontemplation to Contemplation and experimentation or from Contemplation to Preparation or Preparation to Action. Protective factors may play a bigger role in some transitions and risk factors in others, so it would be important and helpful to use separate probabilistic equations to predict stages of initiation.

The Context of Change and Preparation

Problems and assets in different areas of functioning complement or complicate the process of change. If we can identify and understand the activity in change processes and markers during Preparation, we can get a clearer picture of the influence that protective and risk factors play. Until the individual moves into the Preparation stage, many risk and protective factors in the life context are more subtle and latent contributors to the change process. Once the individual gains a positive decisional balance, builds a commitment to engage in an addictive behavior, and begins to experiment, the influence of multiple problems in various areas of functioning have their greatest impact. The cases of Suzy and Sally presented earlier are examples.

Often, serious family and personal adjustment problems are occurring as early use and engagement in the addictive behavior begins. At the same time, vulnerable adolescents or adults are experiencing less success in coping with the tasks of daily life. Even when experimentation occurs later in adolescence, poorer adjustment and diminished coping abilities are often involved. Problematic coping both precedes and follows the engagement in addictive behaviors, particularly for alcohol or drug abuse and dependence (Newcomb & Bentler, 1988; Shiffman & Wills, 1985; Wills et al., 2001). Coping deficits and other problems generate stress

and potentiate the processes of change and decision making that prepare an individual to engaging in an addictive behavior. Self-regulation, which is still nascent in the adolescent development period, also influences initiation. Self-regulatory capacity, which involves executive cognitive functioning and affect regulation, depends on brain maturation that continues up to age 26. Thus adolescents and emerging adults are particularly vulnerable to difficulties managing emotions, planning, decision making, and considering long-term perspectives, all of which influence the initiation process (Baumeister & Vonasch, 2015). These deficits also contribute to the behavior becoming problematic early on in regular use. Below, I review potential complications and contributions involved in the transition from Preparation to Action from each of the areas of functioning identified in the TTM's context of change.

Current Life Situation

Environmental influences and current psychological symptoms are most relevant in this contextual area as contributors to engagement in the addictive behavior. These influences and symptoms operate by making the experienced need for the addictive behavior greater or increasing its functional utility. For example, serious anxiety (psychological symptoms) or friends who are into rule breaking (environmental influences) may contribute to a positive consideration of addictive behaviors and increase access (Van Ryzin et al., 2012). On the other hand, belonging to an active church youth group and having a group of peers who do not engage in drinking alcohol or doing drugs, even though there may be one special friend who does, can serve as protective factors.

Beliefs and Attitudes

Beliefs and attitudes concerning the specific addictive behaviors, core life values, and risk taking play a significant role. When positive expectancies about the addictive behavior are joined with positive expectancies about risk taking and a belief that nobody cares, the combination can greatly facilitate movement through Preparation and into Action. Both explicit and implicit attitudes can interact and influence commitment and behavior (Greene, 2014; Noel & Thomson, 2012). The family's belief system is an important influence during Preparation. While family prohibitions and adolescent rebellion can lead to experimentation, other family attitudes can set the stage for accelerated movement through the Preparation stage. For example, the individual may belong to a family "that can hold their liquor" or to one that uses pills whenever there is a problem (Agley et al., 2015). Beliefs about the nature of

addiction and the power of the addictive behavior to “hook” an individual are also critical at this juncture. Beliefs and expectancies act as facilitative and inhibitory factors during Preparation. “Marijuana is not addictive”; “One cannot become addicted to beer”; and “Only certain types of people or families get addicted” represent beliefs and expectancies that can accelerate movement through the Preparation stage toward Action.

Interpersonal Conflicts and Issues

Interpersonal conflicts and relationship issues have an enormous influence in the process of adopting an addictive behavior. Initiation occurs most frequently during adolescence, when interpersonal sensitivity and conflict are a central focus of developmental tasks. These interpersonal conflicts are taken very seriously by the adolescent and are often underestimated or underplayed by surrounding adults. Emerging sexuality and romantic involvement increase the intensity and confusion surrounding adolescent interpersonal relationships. Feelings of alienation from peers, a sense of inadequacy about interpersonal skills, the desire to be desired, and outright conflicts with various same-sex and other-sex peers can contribute significantly to the initiation of the addictive behavior. Risk taking and conformity behavior are both related to these types of conflicts (Newcomb, 1992).

The vulnerable adolescent has problems in interpersonal functioning. On the other hand, interpersonal effectiveness, a sense of belonging with at least one significant other, and having close friends can offer alternative reinforcements and options that make the addictive behavior less alluring. In my earlier examples, it is not coincidental that both Suzy and Sally have significant social and interpersonal pressures. These pressures are part of the process of movement through the Contemplation and Preparation stages.

Social Systems

As is also clear from the examples of Suzy and Sally, social systems complicate the process of change. Family system conflicts can both precede and follow initial movement from Contemplation to Preparation and can influence additional movement to the Action stage of addiction. Family history of alcohol or drug abuse not only suggests a genetic contribution but also offers modeling and facilitative belief systems as contributory factors (Stanton, 1997; Stone et al., 2012). Conflicts between parents and other family stresses create an atmosphere where the addictive behavior offers a great escape from family tension. Sibling rivalry, hypercritical

parenting, lack of parental monitoring, and other problematic family dynamics can create serious negative emotional states that can facilitate adoption of the addictive behavior (Piko & Kovács, 2010). Family reaction to any indicators of initial experimentation or excessive use can also be an important event. Permissive parenting can accelerate movement through Preparation, just as more assertive parental monitoring can disrupt the initiation process (Van Ryzin et al., 2012).

Other family system characteristics can hinder initiation. Religious affiliation, family cohesion, and parental involvement have all been identified as factors that can protect the individual from moving forward in the process of change. Messages about drinking and driving, discussing questions about drugs and alcohol consumption, intervening with initial bulimic behavior, and responding to any risk-taking and excitement-seeking behavior on the part of the child are also important parental control dimensions (Piko & Balázs, 2012; Sanjuan & Langenbucher, 1999). Parents give important messages to the adolescent about family attitudes. These messages can create either conflict or understanding and result in either rebellion or a more considered, measured perspective on the part of the adolescent.

Enduring Personal Characteristics

Adolescence is a period of individuation and development of the self where the seeds of personal characteristics are planted. Most adolescents are too young to have developed long-standing, enduring personal characteristics. However, self-esteem, identity, and other intrapersonal issues are assuredly present and influence decisions about whether to try and experiment with the addictive behaviors. It is clear from the literature that problematic psychological development often demonstrates itself early and contributes to the development of addictive behaviors (Castellanos-Ryan, O'Leary-Barrett, & Condrod, 2013; Chassin et al., 2000; Deas et al., 2000). Problems with self-esteem and self-concept occurring during adolescence as well as later in life influence initiation of most addictive behaviors (Steffenhagen, 1980). Confusion regarding gender identity and sex roles may also make individuals vulnerable to the alluring effects of addictive behaviors (Goldbach, Tanner-Smith, Bagwell, & Dunlap, 2014).

Issues arising in each of these areas of functioning contribute to the probability equation that could predict movement through the first three stages of initiating addictive behaviors. The more intense and the more extensive the problems in each area of functioning, the greater is the probability of transitioning from Preparation to Action. Conversely, protective factors indicated by healthy development and strengths or a

lack of problems in each of these areas can interfere with this transition. The contextual areas of functioning offer a way of categorizing both protective and risk factors in the initiation of addictive behaviors, of course always keeping in mind that age and development matter. Linking the context with the stages of change offers a multidimensional process perspective on how addictions develop. Focusing on the contribution of these influences to specific stage transitions from Precontemplation to Contemplation, from Contemplation to Preparation, and from Preparation to Action can help unravel the complex network of risk and protective factors that have been implicated in the process of becoming addicted.

AT-RISK PREVENTION FOR THE TRANSITIONS INTO AND OUT OF PREPARATION

Prevention activities that target at-risk populations typically focus on individuals transitioning from Contemplation to Preparation as well as on individuals in Preparation and Action stages of initiation. Table 5.1 offers a view of the goals, processes of change, and prevention strategies related to critical stage transitions. Although some strategies can be useful in different transitions, the goals and the focus of the strategies differ by stage transition.

Anyone who progresses forward out of the Contemplation stage and continues engagement after experimentation can be considered at risk for initiation of addiction. Such movement signifies that the individual's positive considerations of the addictive behavior outweigh negative considerations. Continued experimentation and gradual movement toward more regular use are the hallmarks of Preparation. At-risk prevention programs can help individuals at any of these junctures, but the specifics of those programs will differ depending on the specific stage transition. Thus a broad range of prevention activities can be considered for individuals in Preparation for initiation. These may target those whose use is minimal or sporadic but who hold positive attitudes toward use, or they may target those who use is accelerating and who have serious risk factors for initiation (Carney & Myers, 2012; Hennessy & Tanner-Smith, 2015; Sussman et al., 2014). At-risk programs may also target beginning problem drinkers to prevent them from losing control of their drinking and developing alcohol abuse or dependence (Fachini, Aliane, Martinez, & Furtado, 2012).

The breadth of at-risk prevention can be challenging and confusing. It can focus on attitudes and beliefs about the behavior, the behavior itself, or risk and protective factors. Examples of each of these may be

TABLE 5.1. Prevention Goals and Strategies for Early-Stage Transitions for InitiationPrecontemplation to Contemplation

Goal: Keeping individuals with a risk–reward analysis that supports no interest in the addictive behavior. Sometimes this requires having the individual consider how this addictive behavior is problematic and not needed. Other goals are to ensure that the current life experiences are sufficiently rewarding.

Processes: Consciousness raising, self- and environmental reevaluation, emotional arousal, self- and social liberation.

Strategies:

- *Respect* developmental capacity and environmental exposure.
- *Provide* objective information; role models of success; challenging positive views of the specific addictive behavior; highlighting negative consequences; emphasizing choice and not being manipulated; dramatic, realistic portrayals of dangers; highlight benefits of not engaging.
- *Avoid* offering information that creates interest; overly exaggerated negative or incredible information; telling adolescents what to do; being too patronizing.

Contemplation to Preparation

Goal: Develop a decisional balance that is strongly against experimenting or engaging in the addictive behavior. Support the cons and undermine the pros of use to support moving to Precontemplation by decision. Assist in resolving any ambivalence about engagement.

Processes: Consciousness raising, self- and environmental reevaluation, emotional arousal, self- and social liberation.

Strategies:

- *Respect* developmental capacity and environmental exposure. Talk with them about their experiences and listen to their perspective.
- *Provide* well-founded information about the neurobiological and psychosocial effects of use; undermine any positive experiences of experimentation; acknowledge legal and legitimate use; offer stories of subtle and seductive properties and how misuse can lead to addiction; healthy alternative experiences for sensation seeking; focus on important future goals and successful nonusing role models; challenge positive views of the specific behavior; highlight negative consequences especially for known figures; emphasize choice and not being manipulated by marketing; dramatic portrayals of dangers; highlight benefits of not engaging.
- *Avoid* offering information that exaggerates dangers especially if they have already experimented; undermining self-control and personal decision by telling adolescents what to do; being critical and judgmental.

Preparation to Action

Goal: Keeping individuals who have experimented from continued experimentation and developing a pattern of use; create external incentives and controls for not engaging; interfere with the development of relationships with using peers. Help to create with consequences a risk–reward analysis that supports no continued experimentation with the addictive behavior. Show how important personal goals are incompatible with continued use.

TABLE 5.1. *(continued)*

Processes: Consciousness raising, self- and environmental reevaluation, emotional arousal, self- and social liberation, reinforcement management.

Strategies:

- *Respect* developmental capacity and environmental exposure.
 - *Provide* observation and monitoring of behaviors; drug testing if needed; early intervention to disrupt experimentation; reward positive and prosocial behavior; highlight negative consequences; emphasize responsibility and choice. Support academic achievement and social and personally rewarding activities.
 - *Avoid* being permissive and overly accepting; do not make global, negative evaluations of the person (focus on behavior); excessive consequences; being naïve (get important information and be vigilant).
-

helpful. Some at-risk prevention programs focus on children who are in neighborhoods filled with illegal drug use and provide media testimonials by popular athletes or entertainers about the dangers and risks of using crack cocaine. Dramatic portrayals of these dangers (overdose, death) are used to raise awareness and shift evaluations of the behavior, thus promoting a personal self-reevaluation that would protect the child against experimentation and use. In this case, the clear target is changing attitudes and expectancies related to the substance in order to keep at-risk children in Precontemplation. In contrast, zero-tolerance programs focus on the behavior itself and primarily on those individuals in Contemplation and Preparation stages. These programs attempt to provide rather severe consequences for any engagement in the behavior in an effort to increase the cost of experimentation. Other programs use a different approach: They focus on risk factors by offering special tutoring at school to improve academic achievement or to teach stress management and coping skills. These programs concentrate on providing protective factors to decrease vulnerability to influences that would move individuals into Preparation or out of Preparation into Action. Other programs provide jobs or gainful employment, offer alternative activities that would keep youth off the street corners, and provide family counseling for the children of parents with drug or alcohol problems. All these programs focus on subpopulations of high-risk youth at different critical stages of change in the process of becoming addicted. Evaluations of these diverse programs are also confusing since prevention effectiveness varies by developmental age, program content, and type of delivery system (e.g., in person or by computer, school, family) (Carey, Scott-Sheldon, Elliott, Garey, & Carey, 2012; Carney & Myers, 2012).

One type of intervention is being used for both adults and adolescents to identify high-risk individuals whose pattern of engagement in

the addictive behavior is already problematic or risky. Screening, Brief Intervention, and Referral to Treatment (SBIRT) has been promoted as an opportunistic intervention that can prevent movement into action or maintenance or offer treatment those already at disordered levels of use (American Academy of Pediatrics, 2011; Bernstein et al., 2005; Saitz, Svikis, D'Onofrio, Kraemer, & Perl, 2006; Substance Abuse and Mental Health Services Administration [SAMHSA], 2013). Providers from a range of disciplines are being trained to ask questions about substance use (tobacco, alcohol, drugs, and nonprescription use of prescription medications) to find individuals who are at risk and offer a brief intervention that will increase awareness of consequences and promote responsible use or abstinence. These interventions often address individuals in Preparation or early Action for developing a severe use disorder and are a good example of at-risk prevention as well as early identification interfering with both the transition from Preparation to Action and Action to Maintenance of an addiction.

It is often easy to identify high-risk youth from personal profile or environmental risk. However, the broader and the more impersonal the criteria that are used to define the population at risk, the greater the probability that those caught in the net will include some youth who are in Precontemplation or who have already developed strong personal decisional considerations against initiation. At-risk prevention programs need to be conscious of the potential heterogeneity of the individuals they target in order to provide sensitive and credible messages. Just because a group of youth come from a high-crime area, for example, it is wrong to assume that all or even a majority has experimented frequently or that they currently use drugs regularly. Prevention programs that do not have a thorough knowledge of their target population end up addressing assumptions and prejudices about that population and not the reality. When this happens, messages and approaches can be irrelevant or insensitive, if not dangerous and damaging. For this reason, it is critically important to assess the stages of initiation in the targeted population before employing at-risk prevention activities.

The framework provided in Table 5.1 can be particularly useful in developing at risk or indicated prevention programs. As shown, the three critical transitions for at-risk prevention are the movements from Contemplation to Preparation, from Preparation to Action, and from Action to Maintenance. Preventing these transitions to addiction is the key task of at-risk prevention. However, each transition requires different prevention strategies and different goals. For example, increasing experimentation, a growing social network supporting engagement in the addictive behavior, and an increasingly positive attitude about the behavior mark the transition from Contemplation to Preparation.

Interventions designed to prevent this transition should concentrate on how to decrease experimentation, counter any positive experimentation experiences, and attempt to connect to a social network of individuals who can support nonuse (Werch, Pappas, Carlson, & DiClemente, 1998). All these interventions attempt to engage the relevant processes of change. At this transition the relevant processes are self- and environmental reevaluation related to this specific addictive behavior, the creation of helping relationships, consciousness raising, and supporting an individual's commitment (self-liberation) not to engage in the behavior. These types of interventions concentrate on the addictive behavior itself.

However, the context is also important. Achievements and success in other areas of life, or a lack of problems in these areas, can assist in preventing the transition from Contemplation to Preparation. Depending on the assessment of the context of change for an individual or group of individuals, additional interventions could be developed. Boys from homes where there is no male figure (family/social system) and who are having difficulty in peer relationships (interpersonal) may be at greater risk for this transition from Contemplation to Preparation. A Big Brother or male mentor program with an interpersonal skills training component would be valuable in targeting this transition for this group.

If the targeted transition is from Preparation to Action, other goals and strategies are important. In this transition, individuals move from experimentation to more regular use and begin to develop a pattern of use and a narrowing of other activities. Although frequently the behavior continues to be under self-regulatory control, there are more incidences of impaired control. Consequences may also begin to occur, but generally at low levels of severity. At-risk prevention activities at this point should heighten the salience of any negative experiences with early use, emphasize the seriousness of both experienced and potential consequences of use, and attempt to foster broad engagement in other activities to prevent narrowing of focus (Monti, Colby, & O'Leary, 2001).

In addition, complicating problems in the context of change may be related to this transition from Preparation to Action. For example, individuals who begin to engage in bulimic behavior more regularly may have issues related to individuation (Selvini-Palazzoli, 1974) and trouble separating from their families of origin (Culbert, Racine, & Klump, 2015). In addition, they may have a growing distortion of self-image and beliefs about weight and weight gain. Interventions that would be most helpful for these individuals are those that promote individuation. For instance, an adolescent Outward Bound experience can challenge them to learn and perform on their own, separate from family, which in turn provides accurate feedback related to physical abilities and image. These

experiences can engage the cognitive/experiential processes of self-reevaluation, environmental reevaluation, and social liberation, all of which could discourage progression from Preparation to Action. Providing interventions that focus on the specific stage transition for the addictive behavior, as well as on the complicating problems in the context of change, creates more intensive prevention for this vulnerable subgroup in the process of developing severe bulimic behavior.

SUMMARY

Preparation represents the tipping point for the process of initiation. Individuals have positive or, at least, less negative views of the addictive behavior. They have personal experience of engagement and some favorable expectation about use or engagement in the behavior. They know how to access the substance or behavior and have some acquaintances if not friends who may be role models, encouragers, or access points for the behavior. They have not experienced what they would consider serious consequences of their engagement in the behavior. Thus they are poised to move forward and enter into Action and a pattern of more regular use or engagement. On the precipice of this leap into Action, these individuals are vulnerable to risk and protective factors that can tip the balance toward or against movement into Action. Prevention activities must be personal in the sense that they target the individual's beliefs and expectations, as well as contextual in terms of parental monitoring, providing costs or consequences, and offering alternative reinforcers and activities that could influence ongoing engagement. Although many prevention activities are broad-based and generic, it is clear that individuals in the Preparation stage of initiation need tailored at-risk prevention activities that would disrupt movement forward and that this is very different from universal prevention.

CHAPTER 6



Repeated and Regular Use

Moving into Action on the Road to Addiction

The interaction of biology, psychology, and social influence has its greatest impact during the transition to a pattern of repeated engagement in an addictive behavior.

Once individuals engage in any addictive behavior with some regularity and create a pattern of use, they enter the Action stage for use, misuse, or addiction. In this stage, important interactions occur among behavior, biology, emotions, and cognition related to the addictive behavior. These interactions determine whether the Action stage will consist of self-regulated, nonproblematic use or whether it will consist of a problematic, excessive, and poorly controlled pattern of engagement.

The distinctions between use, misuse, and moderate and severe use disorders can be complicated and controversial, but they are also critical for understanding the process of addiction. This is particularly true for addictive behaviors that involve consumption of legal substances such as alcohol and nicotine or legal behaviors like gambling. Engaging in any behavior that has an “addictive” potential always poses risks of excess and addiction. However, not everyone who engages in some regular pattern of use or engagement becomes addicted. The paths that lead either to self-regulation, misuse, or use disorder are best understood as an interaction of multiple interrelated factors that move individuals toward self-regulation or addiction. Although there are clear genetic

contributions to these paths (Fowler et al., 2007), we will focus primarily on the factors in the environment or where the individual is an active participant.

DISTINGUISHING USE AND USE DISORDERS

As defined at the beginning of this book, addiction is a pattern of regular, problematic, dependent engagement in a behavior that would support a severe use disorder diagnosis. Mild or moderate use disorders (what also have in the past been called misuse or abuse) usually involve engaging in significant levels of the behavior and experiencing some serious consequences without meeting enough of the multiple criteria to diagnose a severe use disorder in DSM-5 (American Psychiatric Association, 2013). The Action stage for becoming addicted involves establishing a problematic pattern of engagement that lasts for a period of at least 3–6 months. Those in the Action stage may have begun to develop physiological dependence (tolerance and withdrawal), depending on quantity and frequency, but often have not had time for the excessive pattern of engagement to create the numerous problems or consequences that would be diagnosed as a severe use disorder. This is not to say that severe consequences cannot occur during the Action stage, since even one excessive use can lead to a fatal car crash or overdose. During Action, engagement begins to elude self-control, resulting often in a sporadic, problematic pattern of use interspersed with periods of regulated use or abstinence. As the pattern of misuse develops, these individuals are at risk for developing a more sustained problematic pattern that can be classified as a use disorder. As loss of control, extensive use, and neuroadaptation continue, and the problematic pattern is sustained and becomes more resistant to self-regulation, it meets the definition for a serious use disorder and the individual moves into the Maintenance stage of an addiction. However, this is not the only possible course. Sometimes, there is an immersion in drinking or drug use as a reaction to a significant negative event or serious loss. In this case, individuals may move into the Action stage and create a problematic pattern of engagement for several months, only to realize that this problematic engagement in the addictive behavior does not solve the problem or alleviate the pain. Often they then stop and return to abstaining from that behavior or move back into self-regulated use.

Self-regulated use is defined as a controlled, modulated engagement in the addictive behavior with few or no negative consequences. This is not a problematic pattern. It is the nature of self-regulation that, when excess or negative consequences do occur, they trigger a reevaluation of

the use pattern and a reinstatement of self-regulation. For individuals who are able to self-regulate, the addictive behavior may cause some problems, especially as one learns how to manage the behavior. However the addictive behavior plays a minor role in their life and lifestyle.

Self-regulated engagement requires active use of the processes of change to maintain decisional balance, efficacy, and temptation at levels that ensure continued self-regulation. For example, self-regulation requires a realistic and balanced view of the pros and cons of the behavior and an acknowledgment of the potential for negative consequences. If anything, the negatives of any excessive engagement outweigh the positives. Cognitive/experiential processes of consciousness raising and self-reevaluation are employed to seek information and evaluate any consequences. This provides the feedback needed for self-regulation. Behavioral processes of stimulus control and reinforcement management are used to avoid situations where excess could be promoted and to access other reinforcers so that the addictive behavior does not become a prepotent and dominant force in the individual's lifestyle. These processes support a growing sense of self-efficacy for avoiding excess and for controlling the behavior, as they help limit exposure to cues and decrease the strength of temptations to engage in the behavior. In addition, contextual areas of functioning either provide protective factors that support self-regulation or contain problems that are resolved in ways that avoid using the addictive behavior as a coping mechanism.

DEFINING CHARACTERISTICS OF THE ACTION STAGE OF ADDICTION

In the Action stage for initiation of an addiction, however, there is a different picture of what is happening. Decisional considerations are skewed toward a positive view of the behavior and support repeated engagement. The positive commitment and planning to engage that developed in the Preparation stage continue. Behavioral processes of change (conditioning and reinforcement) support repeated use and are involved in establishing patterns of use and reinforcing engagement over a wide range of situations. Stimulus generalization rather than stimulus control is operative, so that more situations become attached to engagement in the addictive behavior, or narrowing of the behavioral repertoire begins by limiting activities to those that support use or engagement. Reinforcement from the addictive behavior becomes prepotent in the life and functioning of the individual. Cognitive/experiential processes of change are used to normalize engagement and minimize problems associated with the engagement. Self-efficacy to control and avoid the behavior is

weakened, and confidence that the person can successfully negotiate and continue this pattern of misuse grows. The context of change is often filled with problems and issues that become attached to the addictive behavior and contribute to what Kirisci, Tarter, Ridenour, Reynolds, and Vanyukov (2013) labeled a risk liability index. They found that youth who experimented with cocaine *and* had an elevated transmissible risk liability index were more likely to progress to a cocaine use disorder compared to other experimenters who were low on this risk index. In fact, during the Action stage the context starts to become influenced and shaped by the addictive behavior, as relationships, beliefs, attitudes, and social systems are modified to support repeated engagement. In the following sections, we examine aspects of the behavior, elements of the process, and the impact of the context on the successful completion of the Action tasks that will lead to the addictive behavior becoming a well-maintained behavior pattern that meets the criteria for a moderate to severe use disorder.

TAKING ACTION TO CREATE AN ADDICTION

Many aspects of the addictive behavior, in the environment and in personal considerations, contribute to the loss of self-regulation and excess (Orford, 1985). Different theories concentrate on one or another of these aspects (conditioning, coping, social influences) and make it the defining aspect of addiction (see Chapter 1). But each of these aspects is important; it is the interaction and synergy among them that creates an addiction. In this section I examine aspects of behavior, environment, and personal considerations to see how they contribute to the critical components of neuroadaptation, loss of self-regulation, and salience/narrowing of the behavioral repertoire that are the hallmarks of an addiction.

Behavioral Elements

Quantity and Frequency

Frequency and quantity often are used as markers for the severity and depth of an addiction. Although we define the Action stage as any regular, problematic pattern of engagement, quantity and frequency make a difference. Doing several ounces of cocaine several times a week differs from one use per week of a lesser amount; smoking five cigarettes a day differs from smoking 25; and drinking five drinks in a 4-hour period twice a week certainly is different from a 12-pack of beer each night of the week (Greenfield et al., 2014). Even for non-substance addictions

like gambling, the amount of time spent and the frequency of the behavior are important for defining the problem. This is not to say that less is always virtuous. Even small amounts of many substances can create significant problems and even death, particularly if they are illegal substances or street drugs of unknown purity.

Is there an amount of behavior that should be judged as out of self-regulatory control? Although impairment and consequences should follow excessive engagement, there is not a simple correlation between quantity and consequences. The reality of physical tolerance, the legality of the behavior, and the great disparity in economic and other resources among individuals complicate the correlation between amount of engagement and negative consequences. Individuals who engage more often in the behavior of drinking alcohol, for example, can appear to have better self-control after drinking large amounts of alcohol than others consuming less because of tolerance. In one alcohol treatment research project, graduate student interviewers were constantly amazed at how coherent some alcohol-dependent participants were after registering well above .20 on the breathalyzer, over twice the legal limit of intoxication. Often gamblers who wager and win or lose thousands of dollars every visit to the casino could be considered problem gamblers simply by virtue of the amount of money bet. However, this amount of money gambled and lost would have different consequences if these gamblers were former NBA star Michael Jordan or publisher Larry Flynt rather than blue-collar workers making minimum wage. Although critical for understanding the pattern of behavior, simply using quantity and frequency does not yield a comprehensive definition of severity or an adequate measure of the loss of control needed to define an addiction.

Another critical dimension for determining self-regulation is how the individual and the immediate social peer group view the quantity and frequency of the behavior. As an individual's personal definition of nonproblematic drinking becomes greater in frequency and larger in quantity, so does the propensity for problematic engagement in the addictive behavior. These personal definitions are important for problem recognition and have led to many often-repeated and unrealistic definitions of alcoholism. Drinkers, for example, have their own definition of the amount or pattern of drinking they consider out of control. If the individual's drinking does not meet this definition, he or she believes it is under control. Such definitions might include drinking before noon; drinking hard liquor instead of beer (because beer is not considered alcohol); and drinking alone instead of at bars because if others are doing it, it is not excessive.

The important dimensions of quantity and frequency are difficult to evaluate when the patterns of use are less regular. Individuals who

engage in a pattern called “bingeing” can be as hooked by a specific addictive behavior as those who engage more frequently and regularly. Some individuals, particularly those who are in sports, sales, and advertising professions, have business events that often predictably lead to excessive drinking or drug use. These individuals can find it extremely difficult not to drink or use on those occasions and can have as much or more difficulty controlling this behavior as daily, high-quantity drinkers. Addiction treatment specialists consider an individual who consumes a significant quantity of any mind-altering substance on a daily or almost daily basis over time to have lost or, at the very minimum, to be in great danger of losing self-regulatory ability. However, binge patterns of engagement that occur only weekly or monthly can elude personal control and be resistant to change as well.

Quantity and frequency of the addictive behavior are certainly important dimensions to consider in the transition from Preparation to Action. However, they are only two of the important dimensions to consider. Moreover, quantity and frequency interact with physiological, environmental, and personal factors to create a multidimensional matrix of risk.

Neuroadaptation: Physiology and Pharmacology

The fact that quantity and frequency are important but inadequate to define addiction has led many researchers and clinicians to concentrate on the physiological responses and the pharmacokinetic action of the behavior or substance as the critical mechanism for addiction (Barber & O'Brien, 1999; Benowitz, 2008; Koob, 2013; Litten, Allen, & Fertig, 1996; Weinstein & Lejoeux, 2015). The National Institute on Drug Abuse defines drug addiction in its media guide (www.nida.gov) as “a chronic, relapsing brain disease characterized by compulsive drug seeking and use, despite harmful consequences.” The description goes on to say that addiction is a brain disease because drugs change the brain structure and how it works in ways that can be “long lasting and lead to self-destructive behaviors.”

The physiological response to a substance or an addictive behavior appears to play a central role in various stage transitions. Individuals who find the effects of the substance to be pleasing in the initial and ongoing experimentation come to rely more and more on this consistent physical effect during the Action stage. If I want a certain feeling or want to avoid certain feelings, these behaviors will make it happen (Pandina et al., 1992). Physiology and conditioned learning begin to interact so that the feelings associated with the wanting and the using get connected to more and more events, occasions, persons, and places (Barrett, 1985).

As the effect becomes more useful to the individual, the probability of the behavior being repeated, patterned, and linked with other aspects of the individual's life increases. Physiology and habit begin to intertwine, creating a single woven fabric.¹

In addition, as the individual begins to use more of a substance for its utility and effect, the body and the brain adapt to the presence of the substance and the brain changes (Volkow et al., 2016). The balance between the neurotransmitters and receptors adapts to the excessive use, up-regulating or down-regulating different systems to accommodate the presence of this psychoactive substance. Regular use and excess create a shifting “new normal” in the brain as it accommodates and adapts to the presence of these substances. This neuroadaptation creates some physical consequences like tolerance (the brain adaptation now requires more of a substance to produce an effect) or withdrawal (the absence of the substance disrupts neurotransmitter and physiological systems and creates negative physical and emotional consequences). As misuse continues, physiological systems that regulate stress and process the substance become compromised. This creates a vicious cycle where use and engagement become less satisfying, more predictable and harder to control, and, at the same time, stressing the biological systems (liver, heart, and other organs) that process and react to the substances (Koob, 2013; Volkow et al., 2016).

There have been rather heated debates over the unique roles of physiological dependence compared with psychological dependence in the creation of addiction. One side believes that genetics, brain chemistry, and biology are the defining characteristics because addictions can be created in laboratory animals. Thus it is considered a “brain disease.” The other side offers that psychology is the primordial stuff of which addictions are made since it is about coping, conditioning, reinforcement, and stress management. In this case, it is considered a behavior disorder. An adequate resolution of this debate requires both sides to be declared winners. In human self-administration, it is difficult, if not impossible, to have one without the other. Physiological effects and pharmacokinetics can help identify which substances have addictive potential, but they do not determine which individual will become addicted (Hesselbrock, Hesselbrock, & Epstein, 1999). In the Action stage, both physiology and

¹There is a fascinating line of research in this area called pharmacogenetics that is examining how genes influence different pharmacokinetic functions and play a role in vulnerability to abuse and dependence. In addition, this field is looking for mediating factors that can help pharmacists make compounds that could be effective as either agonists or antagonists for the actions of specific drugs of abuse, including alcohol and nicotine.

psychology contribute to the learning process and to the distinctions between use, misuse, use disorders, and addiction. A multidimensional attachment to the behavior helps explain progress from self-controlled or minimal use to disordered use. Both physiological and psychological factors play a significant role in this process (Kovac, 2013). But there are also important environmental factors.

Environmental Influence: The Micro Setting

Drug and alcohol use as well as engagement in other addictive behaviors are influenced by the immediate surroundings in which the behavior takes place, often referred to as the “micro setting” to distinguish it from the larger social, legal, cultural, and economic environment, which is called the “macro setting” (Connors & Tarbox, 1985; Rhodes et al., 2003). I discuss environmental considerations and the larger macro environment in the section on the context of change later in this chapter. In this section I focus on the micro setting, which represents the topography of the actual behavior.

The importance of the micro setting can be seen in the development of crack houses, drug dens, and the ubiquitous presence of bars, pubs, and casinos. Micro setting appeared to be critical in the dramatic reports about soldiers addicted to opiates in Vietnam who stopped heavy, dependent use immediately on their return to the United States (McCarty, 1985; Robins, 1979, 1980). The microenvironment contributes to the development and durability of the habit and thus to dependence (Kaplan & Johnson, 1992). Often the first uses of substances, particularly illegal substances, occur in clandestine locations or settings. The excitement of doing something risky becomes connected with the physiological responses to the substance, intensifying the experience.

The most extensive work examining microenvironments has looked at the influence of setting for alcohol consumption (Brister, Sher, & Fromme, 2011; Collins et al., 1985; Fromme & Dunn, 1992; Quinn & Fromme, 2011). In carefully constructed laboratory bars, researchers have examined the influences of a variety of factors from the lighting and physical setting to the behavior of bar staff and the modeling of co-drinkers using alcohol and placebo drinks. The evidence clearly supports the influence of the microenvironment on the quantity and frequency of the drinking pattern as well as on the reactions of the individual during and after consuming alcohol and placebo drinks (Goldman et al., 1999). The alcohol industry uses the influence of micro setting to foster consumption of alcohol. Most of us are aware of the influence of the bowl of pretzels or beer nuts at the bar on the quantity of the drinking. Likewise, offering games, food, and other forms of entertainment is certainly

meant to influence both the time spent at the bar and the amount of alcohol consumed.

Although there are fewer controlled studies with other addictive behaviors, the influence of the micro setting is obvious in many cases. Often the environment is constructed to facilitate consumption or engagement. The lighting and absence of windows in the casinos in Atlantic City or Las Vegas are intentional prompts to lose track of time and spend increasing amounts of money. Free casino chips, cheap airfare and accommodations, special clubs, and offering free drinks to players are carefully managed aspects of the setting geared to promote gambling behavior. Most of these prompts and incentives are directed at individuals in the Preparation and Action stage of engagement, when they are most influenced by the micro setting. Individuals in the Action stage of addiction are ready to engage in the addictive behavior at will and so incentives and cues can have their most profound influence. However, once these individuals enter the Maintenance stage, the behavior has become so intrinsically rewarding and so habitual that these micro setting "fringe benefits" may have less influence on the frequency or intensity of the behavior. Often they will only influence which bar or gambling establishment is frequented.

Setting, then, is another factor that influences self-regulation and progress to abuse and dependence. Where, when, and with whom individuals begin to engage in an addictive behavior can influence the amount of exposure, the types of expectations developed, and the regularity and pattern of use. Beginning to drink in a bar where most of the patrons were regulars and drank to excess would be different from beginning to drink on identifiable occasions in various bars and social settings where moderation was more the rule. Again, the best prediction model would be one that did not pit setting against physiology or psychology but that included setting as a parallel influence during this important Action stage of initiating addictions.

Societal rules and regulations also play a role in designing settings and creating microenvironments that are more or less conducive to the individual engaging in the behavior, a process that we have called social liberation. Laws that allow slot machines at racetracks or in bars increase availability of different types of gambling. Making some behaviors illegal is another social strategy that can influence engagement in the addictive behavior and cause or prevent problems. Increasing taxes and cost make access more problematic. Establishing laws dictating the age when individuals can buy products in certain settings can reduce consumption or create illegal activities and markets. Setting and environment create incentives and disincentives and play an important but not independent role in the progression to addiction.

Personal Considerations

Attitudes, Expectancies, and Beliefs

Attitudes are created by a network of beliefs and expectancies related to the addictive behavior. Attitudes are evaluative in nature, creating a good–bad, healthy–unhealthy, or helpful–harmful perspective on the behavior (Ajzen, 2001). Beliefs are developed over time and connect the behavior with values, and they are influenced by societal and global views about the behavior. Expectancies are usually related to a more specific personal perspective on the expected value of the behavior. This section discusses these three dimensions as separate factors influencing engagement in the addictive behavior.

BELIEFS

Beliefs represent the individual's internalized view of generic, basic operating principles that are often influenced by or largely formed through family and sociocultural factors (Stanton, 1997). Beliefs are part of the larger context of change but are discussed in this section because of their close relationship with attitudes and expectancies. Like expectancies and attitudes, beliefs about the addictive behavior are developed early in an individual's life. Often they are derived from the statements of meaningful adults and the practices of the individuals in the immediate environment. A belief that drugs are the work of the devil, that gambling is sinful, that excess demonstrates a defect in character would all have some impact on the process of initiation. The same would be true of beliefs that pleasure is a right, that frustration should not be tolerated, and negative emotions should be relieved in any way possible.

It is tricky to attempt to predict how certain beliefs affect acquisition and addiction. Some negative beliefs toward drugs (e.g., the work of the devil) may contribute to attitudes that accelerate movement toward initiation. Adolescent rebellion can fuel experimentation, and experimentation can debunk a very negative belief, leaving no fallback position. On the other hand, when negative beliefs about drugs remain intact and are held in the context of a solid religious orientation to life, they could lead to a long-term protective mechanism.

EXPECTANCIES

Expectancies exist prior to drinking initiation and are fluid and subject to change. However, the more extensive and well developed the network of these expectancies, the more they can facilitate drinking

acceleration once drinking has begun. Expectancies are influential in the evaluation of decisional considerations that influence movement from Contemplation to Preparation, Preparation to Action, and Action to Maintenance.

After reviewing the extensive research on the role of expectancies in the development of drinking behavior, Dunn and Goldman (1996) reported that even preschool children have some knowledge of alcohol and its effects. Even more interesting was the finding that by the third to fifth grade, positive expectancies seem to develop in a pattern similar to those of adults (Dunn & Goldman, 1996) and that even prior to drinking onset both implicit and explicit expectancies and associations can influence drinking initiation (Noel & Thompson, 2012). These positive expectancies may be related to the acceleration of alcohol use as these individuals enter adolescence (Mann, Chassin, & Sher, 1987). Research indicates that the positive expectations of socializing, fun, and partying are related to initiation and acceleration of drinking (Fromme & Dunn, 1992; Fromme, Stroot, & Kaplan, 1993; Leigh & Stacy, 1993).

The research on coping and substance use, however, seems to indicate that using the addictive behavior to cope with negative emotions predicts substance use problems and the movement toward developing a use disorder. To reconcile these apparently contradictory findings, it would be important to remember that many of the expectancy studies were conducted with adolescents. Positive expectancies may promote regular use during the Action stage of addiction. Using the addictive behavior to cope with negative emotions may predict the movement from active use to problematic drinking patterns and ultimately to use disorders and addiction, as seems to be the case in describing the neuroadaptation that occurs as severity increases (Koob, 2013). How the mechanisms of expectancies and coping are related to the transitions from Preparation to Action and then to Maintenance provides important information for understanding the process of becoming addicted. In order to adequately assess the impact of expectancies, it may be critical to separate individuals into homogenous groupings with respect to drinking or drug use and development of disordered use (Kaplan & Johnson, 1992; Volkow et al., 2016). The more fine-grained analysis provided by the stage transitions can help clarify the contributions of the various elements to specific transitions.

ATTITUDES

Attitudes toward an addictive behavior usually are developed early in adolescence and adulthood, often prior to experimentation, and are

influenced by and interact with beliefs and expectancies. Adolescents who begin to drink with the family at meals or special occasions and see little or no use of alcohol to cope with problems or emotions have a better chance of developing attitudes and expectancies that would support self-control in the use of alcohol. Those who begin their drinking career in a heavy-drinking fraternity or sorority with a pattern of always drinking to get drunk would develop different beliefs and attitudes about how drinking fits into their lives. Children and adolescents who grow up in environments where alcohol is a reward for work, a way to socialize, or a mood manager could develop attitudes toward alcohol that more easily lead to abuse and dependence (Baer, 1993; Jessor et al., 1995; Mann et al., 1987; Van Ryzin et al., 2012).

Parental or familial modeling of a specific substance may not be as important as the more generic message of parental behavior. Parents who drink a lot of alcohol are often shocked to hear their teens compare alcohol consumption to marijuana use or cocaine use. For the teens, the leap is not so surprising because their attitudes about using drugs are connected to the larger picture of using mind- or mood-altering chemicals. The attitude conveyed may be a general one of better living through chemistry.

Adolescents are constantly involved in the processes of consciousness raising, self-reevaluation, and environmental reevaluation, where they are gathering information and evaluating that information to create their own opinions and attitudes. These attitudes, then, influence use or engagement. Attitudes developed by adolescents toward a specific addictive behavior can restrict consideration of use and promote self-regulated use or give permission for greater quantity and frequency and for more multipurpose use of the addictive substance or behavior (Zucker & Gomberg, 1986). These attitudes contribute to the decisional considerations in the earlier stages and then interact with actual use or engagement in the transition from Preparation to Action.

Beliefs, expectancies, and attitudes are double-edged swords. They can serve as both risk and protective factors during the acquisition process. They influence positive and negative considerations and are influenced by engagement in the addictive behavior and by both personal and environmental factors. They develop prior to experimentation with the addictive behavior based on the sociocultural environment. During the Action stage these beliefs, expectancies, and attitudes are informed by the behavior itself. The change processes of self- and environmental reevaluation make these beliefs and corresponding attitudes and expectancies more central to these individuals' lives. It is easy to see how behavior, physiology, and micro setting can interact with the early

beliefs about the addictive behavior. This interaction creates a new and more stable set of beliefs, expectancies, and attitudes that can either support or undermine the acquisition of the addictive behavior.

Reinforcement Value

According to Shiffman and Wills (1985), substance use can become a mechanism for coping with life stresses because it can minimize negative mood or maximize positive mood. Because of the potent physiological effects of addictive behaviors, they can easily become reinforcers and replace less quick or less effective methods of coping with stress or stressors. The more the addictive behavior begins to replace other coping mechanisms, the greater the probability that the individual will progress from use to disordered use. The processes of reinforcement and contingency management replace adaptive reinforcers with more problematic ones. Smokers often report using their cigarettes and drinkers their alcohol to manage stressful situations (Slade, 1999). In fact, stress reactivity and management seem to be central to new conceptualizations of addictions (Koob, 2013; Kwako, Momenan, Litten, Koob, & Goldman, 2016). Once again, the physiological effect interacts with the psychological value to create a durable and problematic pattern of behavior. In fact, a defining feature of use disorders is that the behavior begins to take over a larger and larger role in the life of the individual. As other coping mechanisms drop out, the individual begins to rely more on the addictive behavior to cope with preexisting problems as well as consequences of engagement in the addictive behavior.

This perspective is supported by the reports of individuals who relapse after some success at stopping the addictive behavior. Many studies that have examined relapse precipitants across addictive behaviors have found that negative emotions like frustration, anxiety, and anger are important occasions for triggering the need to engage (DiClemente et al., 1995; Donovan, 1996; Marlatt & Gordon, 1985; National Academy of Sciences, 1999). In fact, negative emotions often emerge as the central set of precipitant situations in examinations of self-efficacy for abstaining from most substances (DiClemente et al., 1995). Thus the need to cope with negative emotions seems to be a driving force moving individuals toward dependent use of the substance or engagement in the behavior. The more individuals use the drugs or other addictive behaviors to relieve stress or noxious feelings, the more problematic the use becomes (Koob, 2013). I have often reminded my clients who are concerned about their drinking of the words of my colleague, Jack Gordon: "Alcohol becomes a problem when it begins to be used as a drug and not

a beverage.” During the Action stage, this process of increasing use for its coping effect is central for understanding the movement from use to disordered use. The individual moves forward on the road to addiction as some quick and efficient reinforcing effects of the addictive behavior begin to be chosen more frequently over less immediately reinforcing coping activities.

Many prevention researchers are guided by the coping and addiction connections. They suggest that development of social competence and a broad-based sense of self-efficacy can be an effective way to prevent substance use among early adolescents (Glantz & Pickens, 1992; Jessor et al., 1995; Siegel, 2015). As described earlier, problems with social competence create a significant risk for development of addictive behaviors. Conversely, social competence may act as a protective factor, particularly in the Action phase. Thus good social skills and abilities may not simply be a marker of reduced experimentation; they may act as a protective factor to prevent the transition to a use disorder once experimentation has begun.

CRITICAL EVENTS IN BECOMING ADDICTED

These factors—the addictive behavior, the environmental influences, and the personal considerations and self-regulatory processes and skills—come together during the Action stage to support engagement in the addictive behavior. They shape the personal history and experiences of the individual influencing self-regulated use or under-regulated addiction. Several critical events occur during the Action stage that allow the more problematic aspects of behavior, environment, and personal background to coalesce and create a regular pattern of problematic engagement that ultimately leads to addiction.

The Sirens’ Call: Regular Use without Consequences

One of the important mechanisms of a self-regulatory system is the feedback mechanism. Self-regulation is a self-correcting system that adjusts to changes in the environment and within the individual. When the human body experiences extremes of hot and cold, self-regulatory responses like sweating or heat conservation occur. Individuals who get food poisoning develop an aversive conditioned response and thereafter typically avoid that food. Speakers read listener facial expressions to adjust their delivery. Feedback, the accurate interpretation of that feedback, and an adaptive response are important elements in human

communication and personal self-regulation (Miller & Brown, 1991; Vohs & Baumeister, 2016).

During the Action stage, feedback about the addictive behavior is critical for determining the paths of self-regulation and addiction. Feedback from first experimentation with a behavior may either inhibit or promote continued use. To move forward from Preparation to Action, individuals usually have had few or no negative experiences with the substance or have had positive experiences that seem to outweigh the negative. Action-stage individuals already have a positive mindset and decisional balance tipped toward engagement in the addictive behavior. Often, in the early stages of acquisition, drinking, gambling, and using cocaine do not have many, if any, negative aspects. This is probably the norm for most individuals entering the Action stage. Although there are tragic stories of individuals in the early stages of using a substance who died from an overdose, these cases are rare.

Lack of personally impactful negative consequences plays a particularly important role in the continued and accelerating use during the Action stage. As use becomes more frequent and of greater intensity or quantity, the probability of negative feedback and consequences increases. As the individual drinks more alcohol at one sitting, experiences like hangovers, blackouts, and physical reactions such as vomiting are more probable and more severe, although not always viewed as negative depending on the social influences and norms. Gamblers who engage more frequently or bet more money increase the probability of losing significant sums of money. Quantity and frequency increase the opportunity for negative consequences to occur while at the same time creating the conditioning, positive reinforcement, and neuroadaptation that make the addictive behavior more valuable to the individual.

As the individual experiences negative consequences, the self-regulatory process should engage and signal the need for a reduction in the problematic behavior or avoidance of it. Thus the drinker who has been sick states that she will never mix beer and hard liquor again or that eight beers or a bottle of wine is just too much to drink in one evening. The gambler who experiences serious losses begins to think he must stay away from the casinos or gamble only to the limit of a specified amount of money. This type of feedback and adaptive response could keep the behavior under self-regulatory control and allow the individual to maintain a pattern of nonproblematic drinking or gambling without progressing to disordered use. If the individual experiences particularly dramatic consequences early in the Action stage, he or she may decide to stop the behavior completely and return to the Precontemplation stage. For instance, a female college student who became pregnant after a heavy

drinking episode with a boyfriend and then had an abortion decided to avoid alcohol completely except on special occasions like weddings, when she would allow herself only one drink. She moved to almost total abstinence and Precontemplation for regular use.

Individuals who experience few negative consequences, who interpret any negative consequences as normal aspects of use, or who consider use experiences, like a hangover, as a sign of a good time will have greater difficulty keeping the behavior under self-regulatory control. Thus the lack of negative consequences or the minimization of these consequences acts as the sirens' call, leading the individual further into extensive engagement with the addictive behavior. This initial failure of the self-regulatory system increases the probability that the individual will engage in greater and more problematic use, leading to more significant loss of self-regulation and self-control. At this point, only more serious or more frequent consequences or a powerful personal realization would have a chance to influence the progression toward addiction. The role of self-regulation seems to change during the progression through the initiation of addiction (Baumeister & Vonasch, 2015).

Narrowing Behavioral and Environmental Repertoires

If the addictive behavior supplies significant positive reinforcement (excitement, social ease, and pleasure) and/or significant negative reinforcement (relief from boredom, frustration, and negative feelings), individuals will tend to seek out and increase their engagement in the behavior. Unrelated activities and behaviors begin to take second place or fade out of the person's repertoire. The addictive behavior becomes increasingly central or salient in the individual's life as interests and lifestyle become focused around that behavior.

This narrowing of the behavioral repertoire often happens in work and family settings with positive and healthy behaviors as well. After the arrival of our second child, my wife and I were preoccupied with taking care of and being with the children during our free time; non-child-oriented activities moved into the background. The narrowing of the behaviors is simply a natural part of becoming preoccupied with a preferred activity.

Similarly, as an individual becomes more involved with an addictive behavior, it becomes a priority to seek opportunities to engage in the behavior and associate with others who share it. Gamblers will often get to know others who like to play cards for money or go to the casinos. Drinkers and smokers will have more friends who drink and smoke. With the policy restrictions on smoking currently being enforced in the United States, groups of smokers can be seen huddled at the front doors

of buildings or in parking lots engaged in animated conversation and probably mutual support. Even adolescent smokers in Action and Maintenance report that about three of their four closest friends smoke (Delahanty et al., 2007).

As the person's behavior and environment narrow around the addictive behavior, the world of the addictive behavior expands. The rewarding physiological effects of the behavior get paired with many different situations and events in the individual's life. This is perhaps most clearly seen with cigarette smoking. Until relatively recently (i.e., 1960s), smoking was something that you could do everywhere. Individuals who began to smoke only at certain times and in certain places rather quickly learned to expand the behavior to a variety of places. They learned to smoke to relax, to relieve tension, and to enhance conversation. Smoking before going to sleep, after engaging in sexual intercourse, during a meal, with coffee after a meal, or at bars while having a drink became automatic for many smokers and were prominent in the picture of smokers reflected in television and movies. The popular TV series *Mad Men* (2007–2013) depicted how pervasive smoking and drinking were in the 1960s in Madison Avenue advertising agencies. Although opportunities to use have not been as ubiquitous as with smoking or drinking, a similar expansion of engagement and narrowing of alternatives happens as marijuana, cocaine, or heroin use becomes a greater focus in the life of the individual. Salience of engagement, then, becomes an important factor in developing disordered use.

More Serious Consequences: A Silenced Alarm

Although initial engagement in the addictive behavior can have little or no consequences, repeated and regular use will almost always carry some rather obvious and serious consequences. It is unlikely that steady, heavy drinking does not bring some criticism or concern from others, does not create some problems in family or work functioning, or does not offer some potential for legal consequences like a DWI. As with initial consequences, how these later consequences are experienced and processed in the feedback and self-regulatory system will be critical as to whether they interrupt engagement and foster self-regulation or are ignored and minimized to sustain problematic engagement in the addictive behavior. If the potential for increasing negative consequences is accurately perceived and processed, the individual can stop or modify the behavior and bring it under self-regulatory control before it progresses to a more serious use disorder. If the impact and potential of negative consequences are silenced, the probability of movement from continued misuse and a use disorder is greatly increased. Consequences

that are rationalized or rejected, ignored or minimized will not provide the self-regulatory feedback that is so critical for interrupting the initiation process.

There are many ways that the feedback system becomes co-opted and made ineffective. Specious reasoning will effectively undermine accurate processing of feedback. Husbands who arrive at treatment at their wives' insistence that they have a drinking problem often blame the wife's fundamentalist religion or alcoholic father for her hypersensitivity. Lateness to work after a prior evening's bout with cocaine or alcohol is attributed to "not being a morning person." Contentions that "I do not drink any differently than my friends so I cannot have an alcohol problem" will also mute critical reflection. Many current smokers will point to relatives who are advanced in age and still smoking as some type of personal protection against the well-established link between smoking and disease. This kind of reasoning and thinking increases as the individual becomes increasingly attached to the addictive behavior. Unfortunately, it also undermines self-regulation.

As we all have experienced, it is rather easy to find positive reasons that outweigh or invalidate the negative when evaluating a behavior that we really desire to continue. Both cognitive processing and brain neuro-adaptation to the increased presence of the substance impair judgment. Reasoning becomes more erratic as the attachment to the addictive behavior becomes the dominant force in decision making. Consciousness raising and self-reevaluation continue to be used to support engagement in the behavior. Reasons why the behavior is not a problem for the individual are continually sought. The process of self-evaluation is filled with harm minimization activities (Daniels, 1998). Reinforcing effects of the addictive behavior and the commitment of the individual to engage fuel this process of muting critical reflection.

This process is particularly problematic when it occurs in adolescence and early adulthood because feedback that comes primarily from adult figures is often suspect. Distrust makes it easier to discount criticism. Some acting out is expected during adolescence, and expressing individuality is an important developmental task (Kaplan & Johnson, 1992). Thus peer influences become increasingly important. The social network and its values often get substituted for family values. Finally, adolescents have more flexibility in meeting the demands made by school, home, and work. It is not as problematic to lose a part-time job, to have a bad semester academically, or to be irresponsible at home. The structure of social expectations, the tasks of adolescence, and the expectations of significant others in the environment can make undermining self-regulation easier during adolescence and early adulthood (S. A.

Brown et al., 1985; Eisenberg, Smith, & Spinrad, 2016). Thinking and judgment can get distorted and consequences ignored or silenced.

This active distortion of consequences and feedback is a critical turning point in the process of becoming addicted. Once the individual effectively neutralizes minimal consequences of early experimentation and then the more serious consequences during the Action phase, the road to addiction seems short and inevitable. That is why misuse is often a critical period in an individual's path toward addiction. As individuals move to disordered use, they are faced with the dilemma of allowing the feedback of the consequences either to stop the abuse and increase self-regulation or to ignore these consequences and lay the foundation for the more serious dependence. Individuals moving down the path of disordered use who increase self-regulation can create behavioral strategies to avoid serious consequences, moderate behavioral excesses, or stop the behavior. Otherwise, they seem destined to progress to a growing dependence on the behavior and addiction.

ACTION AND THE CONTEXT OF CHANGE

The influence of resources and problems in the context of change is critical during the Action stage. Situational problems and influences can increase the value of the addictive behavior for all the reasons detailed earlier. Beliefs and attitudes create the foundations for regulation or excess. Relationships, family and peer systems, psychological problems, and personality characteristics complicate the feedback about the addictive behavior and can accelerate the increases in quantity and frequency, consequences, and the pattern of use that give rise to an addiction. Because micro setting and beliefs have already been discussed, this section focuses on the interaction of personality dimensions, comorbid psychiatric problems, and various aspects of the family and social environment with the process of becoming addicted.

Personality and Psychopathology

Many would like to find the answer to the question of self-control or self-regulation within the individual's character. Some individuals demonstrate great self-control. Conversely, others seem to have little or no self-control. Research on alcohol consumption has searched extensively for an "alcoholic personality" to explain the difference between those who become addicted and those who can drink socially. As discussed in Chapter 1, this search has not been a particularly fruitful one. Most

researchers today do not subscribe to the premise that one or two personality types predict alcohol dependence (McGue, Pickens, & Svikis, 1992; Nathan, 1988).

However, several individual characteristics have been associated with becoming addicted. Disinhibition, impulsivity, or lack of behavioral control have been identified as a cluster of constructs related to risky behaviors (Giancola & Tarter, 1999). These characteristics have been associated with early-onset alcohol and drug use (Shedler & Block, 1990; Sher, Walitzer, Wood, & Brent, 1991; Smith & Anderson, 2001). However, many reviewers of this literature refuse to focus exclusively on these factors and prefer integration of personality and learning risk factors (Smith & Anderson, 2001) or an interactive model between personal characteristics, expectancies, environment, and other life problems (Bailey & Rachal, 1993) as a more complex portrayal of the influence of personality on addiction. Nonetheless, the influence of poor self-regulatory capacity or weakened self-control “muscle” on the initiation of addiction seems to be an important common factor for vulnerability to addiction for individuals with different temperaments or personality characteristics (Szalavitz, 2016). As seems obvious, poor personal self-regulation skills and poor self-control contribute greatly to loss of control over the addictive behavior and are key contributors to disordered engagement (Baumeister & Vonasch, 2015; Sayette & Cresswell, 2016).

There are also psychiatric conditions that have high rates of comorbidity with addiction (Regier et al., 1990). Individuals with mental illnesses appear to be at higher risk for developing an addictive disorder. A complex set of factors that include physiological and social dimensions related to the mental illness creates this vulnerability. Alcohol and drugs of abuse often interact with the illness or the medication that is used to control the illness in ways that facilitate excessive use. In a study of the pros and cons for drinking among a group of individuals with schizophrenia who also had alcohol problems, Hagedorn (2000) identified a set of unique considerations for the pros of drinking that included statements like “Drinking makes me feel normal,” “Drinking helps me with my medication side effects,” and “Others like me better when I am drinking.” Studies have found that the smoking rate among individuals with schizophrenia is three times the average across the general population (Callaghan et al., 2014; Lohr & Flynn, 1992; Vanable, Carey, Carey, & Maisto, 2003). However, it is not clear whether higher rates of addictive behavior among the seriously mentally ill represent a unique pathway to addiction or simply a more potent mixture of social environmental influence, greater coping value, and access (Rosenthal & Westreich, 1999). Once exposed to these addictive behaviors, individuals

with mental illnesses may tend to increase use, find it more difficult to exercise self-regulation, and experience more consequences of use in a shorter period.

Family Influences

The family already has been mentioned as an influence in the sections on behavioral topography and in development of attitudes, expectancies, and beliefs. Particularly in adolescence, the family can influence the movement toward regular use and then to misuse and disordered use. During the Action stage, families can influence the process in several different ways: through reinforcement, lack of punishment, modeling, tacit approval, intense disapproval, and disengagement. Processes of reinforcement management, helping relationships, and social influence are most relevant to the interaction of the adolescent and the family. These interactions feed the adolescent's self- and environmental reevaluation as well as self-liberation, and can influence self-control.

Family responses to the child's first use or experimentation can also foster continued use or interfere with movement into the Action stage. There seems to be no one magic way to respond. Proponents of a "tough love" approach urge serious consequences and referral for counseling or treatment. However, this message is most often directed at parents whose parenting styles have been overly accepting and who are easily manipulated by their children, and who have adolescents who are already well on their way to being addicted. The message for adolescents who are experimenting and beginning to move into the Action stage needs to be carefully crafted so that it does not promote rebellion or foster movement toward addiction. Mothers Against Drunk Driving has encouraged frank and open discussions with adolescents about drinking and driving. They recommend that the parents include the option that if the teen does drink or is with others who are drinking and/or are drunk or drugged, they always have the option of calling for a ride. This is a harm reduction strategy designed to prevent auto accidents and injuries. However, some have complained that this approach gives tacit approval to getting drunk. Consequences and communication are important considerations for preventing progress from experimentation to disordered use and addiction. The exact amount of each is often difficult to determine. However, it seems clear that both too little (pampering and making excuses) and too much (overreaction and rigid control) can influence the salience and/or importance of the behavior, undermine self-regulation, and increase the probability of abusive and problematic use (Chassin et al., 1996; Hummel et al., 2013; Piko & Balázs, 2012; Van Ryzin et al., 2012).

Interpersonal Relationships and Significant Others

Acceleration to regular use and to abuse and dependence often occurs after the individual has moved out of the familial home, either to college or to another living situation where there is greater freedom of behavior. Although the influence of peers and friends is important throughout adolescence, it is in these settings that the influence of significant others increases and becomes more influential in the initiation of the addictive behavior. An adolescent dating an older, drug-using individual presents a clear danger for initiation even if the adolescent remains in the home. However, that danger increases as the family ties weaken and the importance of this significant other increases. It is also true that many drug experimenters have been tamed by the influence of a stable and loving romantic partner who would not put up with excessive behavior. In fact, I have heard many parents praying for just such an influence for their son or daughter to counter peer pressure for excessive use. Significant others can be both facilitating and inhibiting factors during this Action stage.

This type of influence does not stop once adolescence ends. There are documented cases of what I call defensive drinking problems—individuals who initially drink in moderation but who develop abusive and, at times, dependent drinking patterns after marrying an individual with a severe use disorder. It seems that these individuals' partners increase their consumption both to accompany the partner with disordered use and to cope with the negative feelings generated by living with this partner (Leonard & Homish, 2008; Levitt & Leonard, 2013).

Social Support for the Behavior

General social support (having a network of friends and family) can be a protective factor, particularly in the early stages of initiation. It seems that if an individual has a broad social support system with some individuals who engage in the behavior but many others who do not, exposure to that behavior is more limited. It can be a protective factor retarding the movement from use to misuse. However, as individuals enter the Action stage and begin some pattern of regular problematic engagement, support by significant others for or against the specific behavior is far more influential than a generalized sense of social support (Longabaugh, Wirtz, Beattie, Noel, & Stout, 1995; Longabaugh et al., 2010; Wu & Witkiewitz, 2008).

A network that strongly supports frequent and excessive engagement in the behavior may undermine self-regulation. A network filled

with friends and fellow workers who use cocaine in their socializing, who value it as a mood enhancer, and who provide easy access to a supply of it increases the probability of misuse and development of a use disorder. The individual with such a network finds it easy to become more involved in cocaine use and to develop problems and consequences of use, especially if increasing amounts of time are spent in the network. However, it is not simply the presence or absence of the substance-abusing network that influences the choices of the individual; the individual seeks out and pays attention to some social influences and ignores others. The process of social liberation and environmental reevaluation also shape the network as individuals select who will be the important valued others in their lives and create internal norms and comparisons (Bandura, 1986).

Societal Factors

Macroenvironment factors that influence substance use and dependence include both governmental and societal norms and policies (Connors & Tarbox, 1985). Particularly in the United States, it should come as no surprise that larger societal forces influence initiation of addictive behaviors. Our society has experimented with prohibition of alcohol and watched Prohibition create the speakeasy and a lively, illegal network of alcohol-specific support for use. Driving through the Haight-Ashbury section of San Francisco in the late 1960s, I noted that drug use was a way of life, not simply a private behavior in that community. Government and social influences interact with each stage of initiation. However, in the Action stage, these influences can contribute to regular use and the transition from use to disordered use and addiction.

Connors and Tarbox (1985) reported that alcohol consumption is generally price elastic, meaning changes in price are inversely related to demand. Increases in the price of alcohol generally create a decrease in the demand for alcohol. This price-elasticity boundary seems to affect heavy as well as light drinkers. Thus, at least at a population level, cost can interfere with acceleration of use and promote less drinking (Wagenaar et al., 2009). In another example, these investigators report that lowering the legal drinking age from 21 to 18 led to increased consumption and alcohol-related problems among the 18- to 20-year-old population (see also Holder, 1999; Whitehead & Wechsler, 1980). Controlling availability has often produced mixed results. Prohibition created an alternate “bootleg” or “black market” supply system. Some regulation of accessibility seems to shift patterns of demand but not consumption.

In fact, some data for Canada indicate the highest rates of drunkenness occurred in the areas with the fewest numbers of outlets for units of population (Connors & Tarbox, 1985). Government can affect consumption at a population level but needs to be careful that legislative efforts do what they are intended to do. How government and societal influences affect individual use and decisions related to increased consumption is not well examined. However, it appears that price is only one consideration in the decision to drink moderately or excessively (Seaman, Edgar, & Ikegwuonu, 2013).

In summary, there are many interacting dimensions in the context of change that influence individuals in the Action stage. Once an individual has begun to engage in an addictive behavior with any sort of regularity and entered the Action stage of acquisition, behavior-specific variables interact with a host of personal and environmental influences to promote continued engagement and loss of self-regulation. Family, societal, and social support for the behavior interacts with physiology and psychopharmacology, and with the coping and reinforcement value of the behavior. Consciousness raising, self- and environmental reevaluation, and social liberation processes of change, in turn, shape attitudes, emotions, beliefs, and expectancies that promote unregulated use and minimize consequences and concerns.

Harm Reduction and At-Risk Prevention in the Action Stage

At-risk prevention that is focused on interfering with continued engagement and the transition from Action to Maintenance must consider that the target population no longer consists of naïve experimenters but of more seasoned, regular users who believe in their self-regulatory capability to control the behavior. Moreover, the social networks of those in Action often are filled with peers engaging regularly in the behavior. This is no time for vague warnings or general education about negative consequences. It is especially important at this point to focus on the experiences of the individual and to capitalize on any ambivalence and negative considerations.

Offering these individuals data-based personal feedback may be critical (DiClemente, Marinilli, Singh, & Bellino, 2001; Kreuter, Strecher, & Glassman, 1999). Particularly, offering information about any current negative consequences or initial signs of potential dangers could be especially helpful. Miller and his colleagues at the University of New Mexico have demonstrated in several studies that a “drinker checkup program” reduced substantially the consumption levels of problem drinkers for up to 1 or more years (Miller, Sovereign, & Krege, 1988; Yahne & Miller, 1999). This checkup provided an extensive, objective assessment of the

drinking patterns and consequences to individuals with some concerns about their drinking. The program targeted drinkers who were not dependent but often were very problematic misusers of alcohol, many of whom would be diagnosed with a use disorder. This at-risk program is an excellent example of one directed at the transition from Action to Maintenance stages of initiation, although it may also be effective with individuals who have moved on to more maintained disordered patterns of drinking or drug use. Current efforts to implement universal screening for substance use and gambling addiction offer another strategy for screening of use and interfering with misuse and disordered use using a Screening, Brief Intervention, and Referral to Treatment (SBIRT) protocol in many health care settings (O'Donnell et al., 2103).

The transition from Action to Maintenance is particularly influenced by problems in the context of change. The more extensive the problems are in areas of functioning, the greater the probability that there will be a loss of self-regulatory control (McLellan, Luborsky, & O'Brien, 1986). Loss of control can occur because the individual does not have the energy or strength to use his or her self-control to manage the addictive behavior after dealing with the other problems (Baumeister & Vonasch, 2015; Muraven & Baumeister, 2000). At other times, multiple problems both contribute to and result from the erosion of self-control over the addictive behavior.

Interventions that identify and target problems in various contextual areas can be particularly helpful in supporting self-control and preventing the transition from Action to Maintenance. However, it is important to maintain a dual focus on both the addictive behavior and the other problems to effectively prevent addiction. Focusing exclusively on the addictive behavior without considering the influence and impact of the contextual problems that are interacting with engagement in the addictive behaviors seems naïve. Efforts that concentrate on resolving problems in the interpersonal or family contextual areas while ignoring the drinking, eating, drug use, or gambling behavior can allow the individual to avoid examining the behavior. Ignoring the addictive behavior can feed the erroneous belief that other problems, and not the addictive behavior, are the entire cause of current distress. This can increase the probability of transitioning from Action to Maintenance by supporting the maladaptive feedback mechanisms subverting accurate self-reevaluation. This maladaptive feedback is already developing in the individual during the Action stage of change.

At-risk prevention can encompass a confusingly broad range of activities. But specific stage transitions along with the processes and markers most appropriate at these transitions offer a way to pinpoint the risk and define a direction for prevention activities. The interaction of

context with these transitions enables programs to incorporate risk and protective factors as they relate to the stage transition of the individuals targeted for prevention efforts.

Paying Attention to the Heterogeneity in the Process of Change

Program planners and developers who utilize this stage model for at-risk prevention will need to understand the stage status of the individuals that they are addressing with their program. Prevention is a developing science (Coombs & Zeidonis, 1995). There are indications that early interventions can be effective (Carney & Myers, 2012). However, some prevention advocates rather naïvely believe that they can simply develop a single program and apply it to large numbers of individuals who often use multiple substances (Tanner-Smith, Steinka-Fry, Hennessy, Lipsey, & Winters, 2015). Youth who are the typical targets of prevention efforts are not only in different schools, at different ages, of different ethnicities, and in different environments, but also are at different points in the stages of engagement and initiation of addiction. Programs that do not recognize or address heterogeneity in all these areas will not have the credibility, power, or influence to prevent progression toward addiction at all the different points of transition.

As more prevention programs are evaluated for both short- and long-term effects, many are found not to have been clearly effective in preventing acquisition of the addictive behaviors (Clayton, Cattarello, & Johnstone, 1996; Huh et al., 2015; Lynam et al., 1999). Other programs have demonstrated an ability to delay engagement but not prevent it completely (Botvin, Baker, Dusenbury, Botvin, & Diaz, 1995; Pentz, 2010; Tobler, 1986). Outcome evaluations such as these should also be supplemented with process analyses to better understand the mechanisms of prevention or its failure in the context of the process of change (Carey et al., 2012; Longabaugh & Wirtz, 2001; Pentz, 2010).

Analyzing prevention activities in the light of stage transitions and problem areas they address can provide important information with which to evaluate current programs and plan future ones. In addition, identifying which processes of change are being targeted in each prevention program could assist in dissecting programs and examining their inner workings. Understanding whether prevention activities have successfully engaged processes of change in ways that counter movement forward in the initiation process is critical for evaluating prevention strategies (Parrish, von Sternberg, Castro, & Velasquez, 2016).

Interestingly, changes in process activities during the stages of adopting a new behavior appear to parallel process activity found in the cessation of addictive behaviors (Glanz et al., 1994; Hudmon et al., 1997;

Marcus et al., 1992; Pallonen et al., 1998; Perz et al., 1996; Prochaska et al., 1991; Suris, Trapp, DiClemente, & Cousins, 1998). Specific processes are most relevant for different types of prevention. For population-based prevention, cognitive/experiential processes are most prominent because attitudes and decisional considerations are the primary focus of the interventions. As the initiation process moves through the Preparation, Action, and Maintenance stages, behavioral processes like reinforcement management, conditioning, stimulus control, and helping relationships become more prominent (see Table 5.1). Contrary to the cessation process, however, it seems that the cognitive/experiential processes remain important throughout the stages of addiction and that the behavioral ones grow in importance as the progression involves increasingly behavioral aspects of the addiction (Lee & DiClemente, 2000; Parrish et al., 2016). This seems to be true in the initiation of health protection behaviors as well as in the initiation of addictions (Werch, 2001; Werch, Carlson, Pappas, Dunn, & Williams, 1997).

SUMMARY

Many perspectives on the initiation of addictive behaviors have a deterministic view. They propose that once an individual with a certain physiological disposition or with a certain personality profile or social factors engages in an addictive behavior, addiction is a foregone conclusion (Lettieri, Sayers, & Pearson, 1980). This perspective assumes that once you enter the Action stage, an automatic mechanism inevitably leads some to addiction. However, many drinkers, gamblers, and drug users with similar characteristics can engage regularly in these behaviors without becoming addicted. This fact undermines the foundation of any argument of inevitability. Acceleration of use and addiction are determined by multiple interacting factors. It is in the Action stage that the distinction between those who would become self-regulated users and those who move forward toward addiction becomes a concrete reality.

The Action stage of addiction is very volatile, with shifting patterns of use and the possible progression to use disorders and, ultimately, addiction. However, the progression toward addiction as described in Chapter 5 is not inevitable. Addiction is best understood as the result of a matrix of various factors that represent past and present, environment and person, biology and brain, physiology and psychology, and personal processes of change that will ultimately determine the course of acquisition and the path to the well-maintained addiction described in Chapter 3.

Prevention during the Action stage of change is complicated and must be multidimensional, focusing on the addictive behavior(s) and on the context of the individual, which is where vulnerabilities, complications, and protective factors and resilience lie. It seems critical in this stage to provide some alternative distracting and reinforcing activities as well as move individuals away from the accelerated use and reliance on the addictive behavior. Otherwise, the movement to Maintenance seems almost inevitable as was described in Chapter 3.

PART III



QUITTING AN ADDICTION

*The Journey through
the Stages of Recovery*

CHAPTER 7



Precontemplation for Recovery

Cultivating Seeds for Change

The problem of denial is nothing more than the conviction of addicted individuals that, at the present moment, it is not in their best interest to change.

Once individuals have established a well-maintained, dependent pattern of engagement in an addictive behavior, they terminate the cycle of initiation of change that leads to addiction. Regular, dependent, problematic engagement in the addictive behavior becomes the status quo and persists throughout vast expanses of a person's life. Smokers can smoke daily for 30 or more years. Drinkers can consume excessive amounts of alcohol every week of their adult lives for significant periods of time. Heroin "addicts" often find life without heroin not worth living and chase the heroin high for decades. Remaining addicted becomes easier than trying to change. At the same time, addicted individuals can be considered as entering the change process that leads to recovery and being in the Precontemplation stage. Precontemplation for recovery appears to be a static period with little happening except an accumulation of consequences. However, during this stasis there are seeds of change that can be cultivated and that can move the addicted individual toward stopping or modifying the addictive behavior. This chapter examines the characteristics of this Precontemplation stage, the barriers

that interfere with change, and the activities that mark the transition from Precontemplation forward through the initial stages of recovery.

DEFINING CHARACTERISTICS OF PRECONTEMPLATION FOR RECOVERY

The defining characteristic of the Precontemplation stage is that the individual is not seriously considering modifying the addictive behavior in the foreseeable future. In our research with adults we often employ a 6-month time frame to measure the foreseeable future. Six months is far enough into the future to avoid the intense anxiety that more immediate prospects for change would engender, and yet close enough in time to detect significant decisional considerations. This definition includes individuals who are adamantly opposed to ever changing, those who put off change indefinitely, and those who are simply putting off change for at least the next 6 months. Individuals in Precontemplation may have tried to change or, at least, may have seriously considered change previously but they are not doing so now. Currently they lack the interest and concern needed to promote serious, more immediate consideration of changing one or more addictive behaviors.

Many addicted individuals take a long time before beginning to consider *seriously* whether they should either modify significantly or change an addiction. They look like they are not ready for change. They are *not* engaging in the cognitive/experiential or behavioral processes of change that would shift the attitudes, intentions, or behaviors toward change. There is little consciousness raising or self- and environmental reevaluation going on unless it is in the service of protecting the current behavior and even less activity related to behavioral processes of change. When smokers in the Contemplation and Preparation stages of change were compared with those in Precontemplation, the latter group were engaging in significantly lower levels of each of the processes of change, except for helping relationships (DiClemente et al., 1991). In almost all studies, individuals who have the lowest levels of readiness to change and who are identified as being in Precontemplation experience significantly lower levels of processes of change than those in later stages (Carbonari & DiClemente 2000; DiClemente, Carbonari, Zweben, et al., 2001; Morgenstern, Labouvie, McCrady, Kahler, & Frey, 1997; Norcross et al., 2011; Prochaska et al., 1991; Prochaska, Norcross, et al., 2013; Tejero, Trujols, Hernandez, Perez de los Cobos, & Casas, 1997; Velasquez, Carbonari, & DiClemente, 1999).

If we examine the markers of change, a similar picture emerges.

Individuals in Precontemplation have a decisional balance that is strongly tipped against change. The pros that favor engaging in the addictive behavior outweigh the cons. Similarly, the cons for changing the behavior are higher than the pros for change (DiClemente et al., 1991; Prochaska et al., 1991; Prochaska, Velicer, et al., 1994). With the reasons for change so outweighed by the reasons against change, it does not make sense to be contemplating or concerned about making a change.

The marker of self-efficacy is not always a helpful measure for those in Precontemplation. But temptation and a calculation of the temptation score minus the individual's efficacy score across situations can be helpful. If they are being honest, those in Precontemplation usually will endorse rather high levels of temptation to engage in the addictive behavior and lower levels of self-efficacy to abstain (DiClemente, Carbonari, et al., 1994; DiClemente et al., 1985). Those who endorse the highest levels of temptation to drink or use and very low levels of self-efficacy to abstain from the addictive behavior are the most overwhelmed by their habit (DiClemente, Carbonari, Daniels, et al., 2001; DiClemente et al., 1995; DiClemente & Hughes, 1990). On the other hand, some individuals in Precontemplation report a high level of self-efficacy and believe that they could abstain *if they wanted to change*. They just have no desire to change at this time.

For those in Precontemplation with a well-maintained addiction, problems in various areas of functioning are resolved in ways that support the addictive behavior. Belief systems, relationships, social systems, and basic personality characteristics become shaped to fit the addiction and to minimize problem awareness, as described in Chapter 6. Those addicted individuals in Precontemplation have managed the consequences and concerns that arise in the context of their lives so that they can maintain a positive decisional balance that supports continued engagement in the addiction (see Chapter 3).

Precontemplation presents significant challenges for the individual and the intervener. "Why change?" becomes the central question. The response is complicated by a variety of issues. How intact the self-regulation process is after one becomes addicted? How do external factors interact with internal factors, and what role does the context of change play? What strategies keep those in Precontemplation from moving to Contemplation? What is the impact of legal and societal restrictions and prohibitions on consideration of change? How can others help? What is the best approach to reach the person in Precontemplation? These are some of the critical questions to be explored in this chapter to understand better this Precontemplation stage of recovery and the challenges it presents for change.

SUSTAINING OR LEAVING PRECONTEMPLATION

There appear to be several important types of activities that enable those in Precontemplation and sometimes in Contemplation to neutralize any momentum that builds toward considering change. I have labeled these the “five R’s”: reveling, reluctance, rebellion, resignation, and rationalization (DiClemente, 1991; DiClemente & Velasquez, 2002). All these activities and experiences represent more or less effective ways of countering prompts to move toward change.

Most individuals in Precontemplation will employ several of these strategies to neutralize momentum toward more immediate consideration of change. Reveling, rationalization, rebellion, reluctance, and resignation are often used simultaneously. There may be a single, more preferred strategy for avoiding consideration of change. However, preference for one does not exclude use of one or more of the other strategies. What is important for anyone talking with someone in Precontemplation is to listen and to evaluate how these strategies are operating for that individual to understand how best to reach her or him. Below, I describe each of these strategies and how they interfere with consideration of change and appropriate change process activity. Then I suggest strategies that can be used to reach out to an individual in Precontemplation who is experiencing or utilizing any or all these five R’s.

Reveling

Reveling addicted individuals are having too good a time engaging in the addictive behavior to consider change. For them, the serious negative consequences have not yet occurred or are less salient than the benefits. The momentum for change is virtually nonexistent, so there is little need to neutralize it. For these individuals, the decisional balance is clearly tipped against change. The status quo seems to be working for them, even with all the problems or consequences. These individuals may also be rather confident in their ability to change or control the behavior if they wanted to do so.

The challenge is to arouse concern and interest in change by helping the addicted individuals themselves begin to see some of the negatives of the behavior and the benefits of change. Preaching and pushing will be met with resistance. If you listen to someone who is enjoying the benefits of the addictive behavior, the conversation will reflect how enjoyable the highs are and how strong the bond is between the individual and the addiction. Trying to convince the individual that the behavior is not pleasurable would be met with disbelief and ridicule even if it seems

that they are using more to avoid pain and discomfort than gain real pleasure. It is more useful to provide objective normative feedback about the behavior and information about negative physical effects, highlighting real and potential negative consequences. This information, if it gets processed by the individual, can increase consciousness raising and self-reevaluation of negative effects of the behavior. However, it will take a significant rise in the actual or perceived negative consequences to shift the decisional balance in favor of change. Since actual consequences may be at a low level, it may help to focus on environmental reevaluation (how the behavior affects others). Efforts to engage emotional arousal (some dramatic portrayal of consequences) that fosters negative views of the addictive behavior may also begin the shift in decisional considerations. Screening and brief interventions that can connect any current consequences or medical problem to the addictive behavior can also be helpful. Trying to shake or undermine the illusory sense of elevated self-efficacy, if it exists, can also be helpful.

Reluctance

Reluctant individuals in Precontemplation tend to avoid considering change. They are not so much resistant as they are hesitant about the prospects of change. The current behavior has benefits and does not appear *that* bad or problematic to them. Although they are experiencing some negatives of the addiction, concerns about changing outweigh these. Change would mean disruption of the current, more comfortable and accustomed way of living. Fueling the reluctance may be thoughts like “Everyone has one bad habit” or “Whose behavior does not pose some risk or problems?” Inertia rather than energy characterizes those in Precontemplation who are reluctant to change.

The challenges for change are to break through the inertia and build both negatives to the current behavior and benefits for change. Considerations of change need to be energized, and hope instilled that change is possible, beneficial, and worthwhile. Consciousness raising and self-reevaluation processes need to focus on these aspects and use prior experiences of successful change to offer a new personal perspective on the possibility of change. Increasing confidence in the ability to change can counter the reluctance. These individuals need to be reassured that they will be able to function without the addictive behavior and that after quitting they will be able to manage temptations to reengage in the addictive behavior. The support of peers and role models who have made a similar change may also engage the helping relationship process most effectively.

Rebellion

Energy is not at all lacking in the rebellious individual's approach to the problem. They are often passionately invested in their ability to make their own choices and decisions and resent anyone telling them what to do. They appear hostile and resistant to suggestions that they have a problem or need to change. Often the rebellion appears like that of adolescents asserting their rights and defining themselves in opposition to societal (i.e., parental) norms. This view of rights often hides the fact that rebellious individuals in Precontemplation are also loath to admit their physical or psychological dependence on the addictive behavior. The rebellion is a sign or mark of freedom for these individuals, who are in reality quite dependent on their addiction.

The challenge for change is to link autonomy and freedom with change and shift the energy devoted to rebellion into Contemplation and Preparation for change. This is clearly easier said than done. For this kind of individual, the behavioral process of self-liberation seems to be important even at this early stage of change. Any modification of the addiction must be the responsibility and choice of the individual. He or she must be in charge of the change. Only then can the processes of self-reevaluation, environmental reevaluation, and consciousness raising be pursued in a personally relevant manner. Rebellion can effectively shut down concerns and considerations of change because they can be viewed as external and imposed. Motivational enhancement strategies that I describe in detail a bit later are particularly important for those in Precontemplation who are most angry in their rebellion (Project MATCH Research Group, 1997b, 1998a). The process of social liberation, wherein individuals recognize and acknowledge societal restrictions and options as forces promoting change, is least helpful for individuals in Precontemplation who feel rebellious about the addictive behavior.

Resignation

There also appears to be a subgroup of individuals in Precontemplation who feel hopeless and helpless about change. They are resigned to their addiction and remain in Precontemplation as a default mode. They are either overwhelmed by all their problems, including the addictive behavior(s), or they have tried to change and found it seemingly impossible. They feel unable to change and believe that they must resign themselves to being dependent on the addictive behavior. Among smokers I have called this phenomenon "the next-generation solution to smoking." Plaintively and paternalistically, these resigned smokers in

Precontemplation say that it is too late for them to stop because they smoked for 10, 20, 30, or 40 years or because they are too physically and psychologically addicted. They conclude that change is not an option for them. The only change they see as possible is stopping the next generation of smokers from starting. Most often these individuals are resigned to living a life chained to their addiction. Millions of others have been able to quit smoking, but resigned individuals feel that they are the exceptions and cannot change. Whether this is an excuse or a reason, these feelings of resignation allow the individual in Precontemplation to continue to engage, either comfortably or with significant discomfort, in the addictive behavior.

For those who are resigned, the challenge for change is how to infuse hope and a vision of the possibility of change. These individuals tend to have high levels of temptation and low levels of efficacy for change. Self-reevaluation needs to focus on the individual's personal concerns about change. Self-monitoring of the details of the addiction can give those who are resigned a better picture of when and why they engage in the behavior and offer a realistic view of the topography of the addiction. Helping relationships and environmental reevaluation that offer support by detailing the ability of similarly addicted individuals to change can increase self-efficacy. Offering data that in some clinical trials some of the most dependent individuals have been the most successful in changing (Project MATCH Research Group, 1998a) also can help counter the hopelessness. The fact that some medications can assist in curbing temptation and managing craving can also offer hope for those most overwhelmed by the addiction.

Rationalization

Finally, most individuals in Precontemplation articulate, at least to themselves, their own personal, protective rationale as to why the addictive behavior does not pose a serious problem for them. These are the rationalizing individuals. They appear to have all the answers, in contrast to those who are more resigned, who have none. It is easy to get into debates with this type of person. "Yes, this behavior could be a problem for others but it is not for me because . . ." They have many reasons for believing they will avoid the negative consequences. "I am only going to smoke for a few years"; "I am young and able to handle my liquor"; "I won't drink like this when I have children"; "I rarely go above the limit I set for myself when gambling"; "I use drugs recreationally. I could never be an addict." These beliefs lead individuals who drink massive quantities of alcohol to be convinced they are not dependent because they only drink beer or do not drink before noon. Similar rationales can lead

individuals, dependent on cocaine or marijuana, to believe that they are virtuous because, at least, they do not do heroin.

It is important to note that the difference between reason and rationalization is often in the eye of the beholder. If the argument is *my* rationale, it is a reason. However, if *you* propose the same argument, it is a rationalization. Labeling someone as being rebellious or rationalizing fails to appreciate the individual's point of view. Labeling in any form can be a detriment to engaging and moving those in Precontemplation through the stages of change because it does not address what is, for them, the compelling nature of their argument. In fact, I have begun to avoid use of the label "Precontemplator" because it makes what is a state representing lack of interest and concern seem like an identity, thereby suggesting it is less changeable than moving individuals out of Precontemplation actually can be.

Whether rationalizing, reluctant, rebellious, resigned, or reveling, individuals in Precontemplation think and feel. What they are thinking, feeling, and saying should be taken seriously. They are not simply trying to convince us of their reasons or rationales. They must convince themselves first. Each strategy produces an individual with strong conviction about the truth of their argument. Often it is not that the individual in Precontemplation is resistant to change and then begins to employ these strategies. Rather, the resistance comes from the fact that these individuals believe personally and deeply in the various rationales and perspectives that keep them in Precontemplation.

The preceding experiences and activities of those in Precontemplation mute concerns and considerations and restrict change processes that would move them toward changing their behavior. Jill Walker Daniels (1998) conducted a fascinating study examining the rationalization and resignation strategies employed by smokers who were not considering quitting smoking. What she found was that the more these individuals minimized the harm related to smoking (a rationalizing activity), the less they used self-reevaluation and consciousness-raising processes and the less they sought information or thought about any problems related to smoking. Those who were high in what she labeled cessation hopelessness (more resigned) were lower in self-efficacy and behavioral processes of change that could help them manage their smoking. All the participants in this study were not seriously considering change in the next 6 months. Even among these individuals in Precontemplation, there was variability: the more they felt resigned and hopeless or engaged in harm minimization thinking, the less they were engaged in the processes of change that could lead to considerations of concern or build confidence in their potential to change. The goal of any intervention is to activate these important processes in one way or another.

THE TRANSITION FROM PRECONTEMPLATION TO CONTEMPLATION

The Response Ability of the Individual in Precontemplation

The previous discussion of change process activity and shifting decisional considerations places a significant amount of responsibility on the individual in Precontemplation to do something that would promote the transition to Contemplation. Some would argue that considering a compromised ability to self-regulate their behaviors, expecting such responsibility from someone in Precontemplation is unrealistic. Certainly, it is unrealistic to expect the addicted individual to move quickly to Action and stop the addictive behavior with minimal urging or pressure. However, it is not unrealistic to believe that he or she can begin to consider consequences and change. It is true that this consideration probably needs to be done when the individual is most sober, least intoxicated, or has the most distance from the addictive behavior. Addicted individuals are least accessible in the midst of their cocaine or gambling run, heroin rush, or eating binge. However, individuals in Precontemplation who are dependent on an addictive behavior are clearly capable of directed and self-regulated actions and thoughts. It has always amazed me to see the ingenuity and creativity demonstrated by the addicted individual in making excuses, in creating deceptions for family and friends, in procuring the desired drug, and in creating the opportunity to engage in the addictive behavior. Although self-regulation and self-control over the addictive behavior are certainly compromised, goal-directed behavior is not impossible for addicted individuals, and neither should be some consideration of the problems and consequences of the addictive behavior. Such considerations represent movement into the Contemplation stage of change.

Traditionally, discussion of responsibility and addiction has been framed in extreme opposites. Either the addict or the addiction is responsible for the lack of change. The truth lies in the middle. Individuals do not become addicted to pharmacologically inactive substances or nonrewarding behaviors. On the other hand, potent mind- and emotion-altering drugs and behaviors do not create and maintain addictions without the participation of the individual. Nor do individuals quit and stay away from an addictive behavior without personal evaluation and effort. The process of change for addiction and recovery involves interacting external and internal forces. The individual addictions involve powerful reinforcing effects and consequences, personal choices, and environmental influences; these interact with the individual's entire life context. Addicted individuals are capable of the considerations needed to move forward toward recovery. When and how they can be helped to move into Contemplation, however, is complicated (Heather & Segal, 2017).

Confrontation, Consequences, and Contemplation

The rejection of change by an individual in Precontemplation often leads to confrontation and external interventions, including punishment, restrictions, losses, and threats of significant losses, which are viewed as the only way to “break through the denial” (Dodes & Khantzian, 1991). Imposing or coercing motivation appears the method of choice for many family members, treatment personnel, and policymakers, who see these individuals as actively fighting consideration of change (Donovan & Rosengren, 1999; Liepman, 1993). One strategy is to confront the person about being an addict by bugging, confronting, and nagging the individual into moving toward change. These tactics are risky because they can create a chasm between helpers and addict. If they work, they are probably most effective with those who already were considering or were more prepared to change.

There is little evidence to suggest that these punitive or aggressive confrontational approaches are effective in producing change. In fact, there is evidence that confrontation produces increased resistance to change and more denial rather than a decision to change (Miller, Benefield, & Tonigan, 1993; Miller & Rollnick, 1991, 2002, 2013). Moreover, simply labeling individuals as resistant or in denial may become a way for others around the addicted individual to justify calling it quits regarding their efforts to reform them. There is enormous meaning and power in a name or label. Most readers will be familiar with the phenomenon of the self-fulfilling prophecy. Saying it is so can make it so. Thus labeling an individual’s unwillingness to admit to a serious problem as resistance may actually create rebellion and denial.

Nagging can be a particularly ineffective way to move the individual in Precontemplation, despite occasional successes. Research in partner support for smoking cessation and reduction of drinking has shown that partner nagging was counterproductive and that the best way partners could help was by eliminating problematic interactions and supporting autonomy (Cohen & Lichtenstein, 1990; McCrady et al., 2013; Patten et al., 2016; Prochaska, Norcross, et al., 1994). Stopping problematic persuasion techniques proved better than doing something more proactive and confrontational and better than increasing more positive helping behaviors and interactions.

There are many examples of how external pressures or control (even positive incentives like money or privileges) often produce short-term but not long-lasting addictive behavior change unless the individual is ready to cooperate (Curry et al., 1990; Higgins, 1997). Individuals jailed for drug-use offenses, even for significant periods of time, often return to use upon release. Mandated treatments produce mixed results (Anglin

& Hser, 1992; Donovan & Rosengren, 1999). Curtailing supplies often creates greater demand and vigorous black markets. Clearly, external pressure is not the magic that *necessarily or automatically* motivates consideration of change or moves those in Precontemplation forward in the process of change. Given the choice of drug court and treatment or jail, it is not unheard of for individuals with drug or alcohol offenses to choose jail. Drug courts also often do not reduce overall incarceration because of participants' failure to maintain change (Sevigny, Fuleihan, & Ferdik, 2013).

On the other hand, consequences hold no special magic in getting an individual in Precontemplation to move to Contemplation, and there are numerous examples of the principle that consequences do not always teach. It has been a time-honored assumption that to move the addicted alcoholic only two options are available: hitting bottom or confrontation. The first was to allow the number and severity of the consequences to accumulate until these consequences reached a critical level of tolerance for that individual (hitting bottom). Only then would the addicted user begin to consider change. Certainly, consequences can teach. A smoker's first or second heart attack, the drug addict's first arrest, the gambler's loss of a significant amount of borrowed money, the alcoholic's divorce can be instructive moments and promote consideration of change. However, consequences do not teach everyone. Often multiple consequences simply reinforce a sense of hopelessness and helplessness to change. In some cases, severe consequences can contribute to increasing the engagement in the addictive behavior to relieve the stress or in an indirect and suicidal attempt to stop the pain. External pressure can sometimes interfere with movement out of Precontemplation (Speiglmán, 1997).

The challenge for family, friends, and helpers facing the multiproblem, addicted individual in Precontemplation is daunting. They describe their anger and frustration, frequently feeling betrayed by the empty promises that never seem to materialize into real change. They burn out on the prospect of influencing the individual. Family and friends look to therapists and treatment as having the power to make the change happen. If only they can get this person into treatment, they believe that the individual in Precontemplation will change. "In the meantime, what can we do?" they often lament. What can anyone do to get this person to change?

A few critical misconceptions lead to this sense of powerlessness. The fact is, neither family members nor friends have the power to make the individual in Precontemplation change, even though they often get their loved one to endorse or promise change to end the nagging. Treatment personnel also cannot make the person change, and often professional helpers have even less power than family and friends. Family

members do have control over many important reinforcers and many important elements in the life of the person in Precontemplation. Parents often complain about their lack of control over their teenage son or daughter. However, they continue to let these teens use the family car; give money for gas; and provide food, clothing, and shelter without setting any limits or providing any contingencies on their behavior to gain access to these privileges. Although even “tough love” will not guarantee success, its advocates do have an important point. Families often give enough financial and personal support for their addicted son or daughter to avoid the harshest consequences of their addiction in their efforts to make sure that those in Precontemplation do not make terrible mistakes (stealing, turning to companions who would enable the addictive behavior, starving themselves to death). In effect, these families neutralize the educational effects of negative consequences. They are short-circuiting any consciousness raising and self-reevaluation that could occur when consequences are fully experienced.

Families that learn the lesson of not interfering with natural consequences often can be more effective with the family member in Precontemplation. Furthermore, the approach has benefits even if it does not provoke change. Families who set appropriate boundaries and allow the natural consequences to make an impact often feel less used and abused by the addicted individual in Precontemplation, who will often learn to be more responsible if there are serious consequences. They may not move forward to quit the addictive behavior, but they may adapt their behavior enough to avoid some of the consequences. Heavy drinkers or drug users will often avoid driving while drinking or using to prevent a second or third driving under the influence (DUI) arrest. Having to make efforts to avoid consequences also can encourage them to think more about their behavior and its consequences. Concern about consequences can lead them to reevaluate the decisional considerations and move them into Contemplation. However, it is always possible that they will not be moved by these consequences and will make the terrible feared mistakes that families dread.

In addition, using the term Precontemplation and identifying this state as a stage of change appears to be a more functional and less pejorative way to characterize individuals at this point in their engagement in the addictive behavior. If we understand the well-maintained addiction as was previously described, it is easy to see how these behaviors become so firmly established and resistant to change.

External pressure and environmental consequences certainly can influence individuals in Precontemplation but alone appear to be insufficient to produce movement out of Precontemplation into Contemplation. The individual must become involved. My favorite story of this kind of

interaction is that of a taxi driver whom I interviewed on my way to a restaurant one evening. He was a current member of Alcoholics Anonymous (AA) and had been sober over 1 year after a lifetime of alcohol dependence. About 3 years prior to our encounter he had been arrested for "crawling away from officers and resisting arrest." The police officer, who had previously arrested him numerous times, decided to throw the book at him. The judge was also getting exasperated and sentenced him to a year of probation with the stipulation that he must attend AA meetings for a year. He dutifully completed his sentence, going to AA meetings and then going out drinking at a bar across the street. He continued going to AA not only for the probation year but also for an entire second year while continuing to drink. Then one night at a meeting he heard a speaker with whom he felt a close kinship and he began to take the AA messages more seriously. At that meeting he went forward and requested a desire chip, the token that he was serious about quitting drinking. That was the beginning of his journey to sobriety. At the time of the taxi ride, he had achieved more than a year of sobriety, was serving as a sponsor for several other AA members, and currently was organizing new AA meeting sites. The driving force behind his ultimate movement out of Precontemplation was becoming concerned and convinced of the need for change. In this case, being mandated to attend AA probably helped but was not enough by itself, and certainly did not happen overnight.

The more recent emphasis on motivational interviewing and research on this approach also supports the contention that confrontation and labeling are at best ineffective and at worst harmful in dealing with an individual in Precontemplation (Miller et al., 1993; Miller & Rollnick, 1991, 2002, 2013; Rollnick, Mason, & Butler, 1999). A more motivational approach would use empathy, understanding, and objective feedback to provide the forum where the individual with the addictive behavior can explore any slight ambivalence about change or small concerns about the problem. This opening strategy allows a more sensitive view into the individual's perception of the issues and the problem. Significant research supports the motivational interviewing approach as a more effective way to create and increase personal motivation and movement through the stages of change (DiClemente, 1999a; DiClemente & Velasquez, 2002; Lundahl & Burke, 2009; Miller & Rollnick, 1991, 2002, 2013).

Although external pressures and problems can play a role in motivating someone in Precontemplation, it is the internal processes that are critical to moving forward in the stages of change (Simpson & Joe, 1993). The addicted individual must (1) see the problem, (2) perceive the risks, (3) experience and digest the consequences, and (4) see the potential for change. Thus movement from Precontemplation must occur from within

the individual to begin the process of intentional behavior change. There is certainly a role for external pressures and consequences, but we must begin to understand better how these external and environmental forces interact with the individual internal processes to promote movement to Contemplation more effectively. Otherwise, extrinsic motivation creates imposed change (stopping drinking during probation; stopping smoking for the pregnancy), which often is merely a performance behavior for the duration of external contingencies without engaging the intentional process of change.

Ultimately, the critical mechanisms and processes of change for moving out of Precontemplation are consciousness raising that increases problem recognition, self-reevaluation that engages personal cost-benefit analyses, and any other activities that create shifts in attitudes and promote accurate information processing. In addition, a seminal belief in the possibility of personal change regarding the addictive behavior would help promote consideration of change.

Promoting Problem Recognition and Objectivity

Problem recognition is central to resolving Precontemplation, but is not a simple process. It requires that the individual identify problems and consider them as intimately connected to the specific addictive behavior rather than to other aspects of his or her lifestyle or environment. It requires the individual to evaluate as problematic the specific amount and frequency of the addictive behavior. Problem recognition requires the individual to judge that a behavior producing some benefits can also be producing problematic consequences and that the problems are beginning to equal or outweigh the benefits. For the problem recognition process to occur, the individual must experience an emerging sense of vulnerability to the problematic consequences (Kohler et al., 1999). In addition, he or she must be able to step back and create enough space between person and behavior to allow for a more objective appraisal of the addictive behavior and its consequences.

Objectivity and honesty with the self, at least regarding the addictive behavior, appear to make an important contribution to the shifting an individual out of Precontemplation and forward toward Action. In the big book of AA, honesty with oneself is considered the critical component to beginning the road to recovery (Alcoholics Anonymous, 1952, 1976). However, objectivity with an addictive behavior is as difficult to achieve as objectivity during a passionate love affair. The two situations are very similar (Peele, 1985). Objectivity is elusive in this state of mind. A behavior maintained by multiple mechanisms and reinforcers makes movement out of Precontemplation a challenge.

It is often easier to identify the many ineffective ways of promoting objectivity than it is to suggest effective ways. Ineffective methods fail to engage the appropriate processes of change, and they often undermine the shifting of the decisional balance and the creation of a sense of hope and efficacy. A frontal attack on the behavior, listing all the negative characteristics and consequences, will usually backfire because it tries to force engagement in consciousness raising and self-reevaluation. Such a presentation will probably be overly inclusive and contain some consequences that the individual has never experienced; it will be relatively easy for the individual in Precontemplation to disregard what he or she sees as hyperbole. Nagging defined as the constant repeating of one or more consequences against which the individual in Precontemplation is well defended is particularly ineffective in promoting honesty, objectivity, and self-reevaluation. In fact, once the interaction of nagging and blowing it off becomes systematized, as happens in marriages and families, the information contained in the nagging message becomes irrelevant and very easy to dismiss almost immediately. Punishment is another rather ineffective way to promote objectivity. From the early research into reinforcement theory, psychologists learned that punishment simply suppressed but did not eradicate a behavior (Craighead, Craighead, & Ilardi, 1995). Punishment often teaches the individual how to engage in the behavior in a way that avoids the punishment, thereby producing crafty evasion rather than objective honesty and personal reevaluation.

Some better ways to promote more objective self-evaluation include motivational interviewing (Miller & Rollnick, 1991, 2002, 2013; Rollnick, Heather, & Bell, 1992; Rollnick et al., 1999). This approach promotes an interactive stance that respects the individual engaging in the addictive behavior and attempts to begin with her or his perspective. It promotes consciousness raising, environmental and self-reevaluation by listening, summarizing back to the individual what is heard to make sure that it is understood, and looking for any ambivalence or discrepancies between the individual's behavior and her or his values, beliefs, and experiences. This method leaves the responsibility for change to the individual, avoids fighting and confrontations, and promotes "rolling with resistance." Another strategy that is often included in brief interventions and seems to promote self-reevaluation is the provision of accurate and objective feedback based on a careful assessment of that individual and her or his behaviors (DiClemente, Marinilli, et al., 2001). In these approaches the effort is to focus on the person who is in Precontemplation and discuss openly the addictive behavior and any consequences and issues related to it, always beginning with the individual's perspective. The hope is that being on the same side as someone in Precontemplation

and understanding from the inside how the individual stays in Precontemplation offers better ways to promote a more accurate and personal self-assessment.

THE CONTEXT OF CHANGE

Distraction or Focus

There is an interesting and complicated interaction between the primary addiction and the life context of the addicted individual. As discussed earlier, problems in various areas of functioning can precede and follow the development of the addiction. Problems that contributed to creating the addiction typically become exacerbated as the individual spends increasing time engaged in the addictive behavior. Preexisting psychiatric syndromes; depression-generating belief systems and self-talk; interpersonal inadequacies; and problems in social, employment, and family systems flare up and can distract the individual from clearly seeing connections to the addiction. Moreover, new problems are created in each of these areas because of the addiction. These marital or relationship problems, family conflicts, and other psychiatric diagnoses complicate the consideration of change. The individual in Precontemplation can quickly shift the focus of attention from the addiction to one or more of the associated problems. Each of these problems can produce distress and disability, which are a reason for concern in their own right. However, it is important to make a distinction between problems that represent important complications for the change process and those that are being used to divert attention from the addiction and protect the Precontemplation status. We examine several of these complicated interactions.

Interpersonal Conflicts

Marital problems are often the identified problem that brings an addicted individual into treatment. Spouses push individuals in Precontemplation into treatment or other forms of help with threats of divorce and separation (Wild, Newton-Taylor, & Alletto, 1998). Although unwilling to acknowledge the addiction as a problem that needs changing, the individual in Precontemplation may be open to discussing the marital problems. This acknowledgment can serve as a diversion as much as a useful discussion. It is precisely at this point that the question emerges as to what is figure and what is background in the process of change. Is it important to address the marital issues prior to, simultaneously with, or after trying to address the addictive behaviors? Turning down the heat on the marital conflict may provide negative reinforcement supporting the

addiction since relief of the conflict may allow the addicted individual to believe that the problem is resolved without changing the addiction. On the other hand, if the marital conflict is fueling the dependent engagement in the addictive behavior, some resolution could give the person some breathing room that could give rise to more effective consideration and concern about the addiction. Often a bit of both are needed.

Coexisting Psychiatric Problems

It gets even more complicated when there are coexisting psychiatric problems. Because many of the addictive behaviors can produce anxiety, depression, disorientation, and delusions, the problem of separating psychiatric symptoms from physiological consequences of addiction becomes very difficult (V. B. Brown, Ridgely, Pepper, Levine, & Ryglewicz, 1989; Mueser, Bellack, & Blanchard, 1992). If the depression or psychotic symptoms clearly predate the addiction, managing the psychiatric problem would seem to take priority. Nonetheless, it is difficult to manage the psychiatric problem while the individual is actively engaged in using drugs or alcohol in a dependent, problematic manner. This co-occurrence is problematic at every stage of change. However, it is most problematic when the addicted individual is in Precontemplation for recovery and more complicated when this individual is in Precontemplation for modifying behaviors related to psychiatric problems (medication adherence, behavioral activation) as well as for recovery from addiction (Bellack & DiClemente, 1999; DiClemente, Carbonari, & Velasquez, 1992).

Systems Problems

Family relationships and social systems also interact with the addiction in a complicated fashion. There may have been significant problems in these systems prior to developing the well-maintained addiction. Sexual abuse, parental drug and alcohol problems, problematic employment histories, and dysfunctional social systems are often part of the backdrop of addiction (Chassin et al., 1996; Grant & Dawson, 1999; Stanton, 1997). Once again, the decision of when and how to address these issues is complicated. Problems that occur in these systems because of the addiction create additional stress and conflict, thereby compromising helping relationships. Precontemplation can be one of the most frustrating stages of change for family, friends, and counselors in various helping systems (Prochaska, Norcross et al., 1994). Family support programs like Al-Anon encourage the family members to disengage from the loved one with a severe use disorder.

The reality is that addicted individuals have a complex and complicated set of problems in a variety of areas of functioning that blur the focus on the addiction for addicted individuals and those around them. The context of change seems filled with issues, problems, and conflicts that can deter and distract from accomplishing the tasks needed to move from Precontemplation to Contemplation. Efficacy, decisional balance, and processes of change that are needed to move forward are undermined by the multiple problems. Although it seems reasonable that anyone who is addicted would have a better chance of resolving problems in the context of change if they first were free of the addiction, a sequential solution—first get into recovery and then handle other problems—does not always work. Some problems must be addressed and at least attenuated before, or at the same time, so that the individual in Precontemplation can have the physical and psychological space and strength to begin to face the addiction. For the homeless, a safe and secure environment may be needed prior to engaging in an evaluation of decisional considerations. A truce regarding marital conflict may need to be negotiated or some medication management given to those with serious psychiatric problems before we can realistically expect any consideration of recovery. However, there is a dilemma. Providing respite and relief is a two-edged sword. On the one hand, it can provide the safety and personal space needed to begin considering change and movement toward successful recovery. On the other, it may allow the individual to regain the strength and energy needed to pursue the desired addiction. Synergistic and integrated, rather than separated and sequential, approaches provide the best chance of addressing the multiple contextual problems that occur alongside the well-maintained addiction or addictions (Drake & Mueser, 2000).

There are several suggested strategies for coping with life context problems in the individual in Precontemplation for recovery that emerge from this analysis of the process of intentional behavior change.

1. First, patience and persistence are needed to address the complexity of problems that are the fabric of the addicted individual's life.
2. Some problems clearly must be attenuated prior to being able to engage effectively in the processes of change such as consciousness raising, self- and environmental reevaluation, and helping relationships. For example, any symptoms and circumstances that impair cognitive capacity, undermine self-regulation, or otherwise make engagement in these processes impossible would need to be remediated first.
3. Harm reduction strategies to reduce associated problems or relieve stress and distress should contain messages and strategies that

also attempt to create interest and concern for recovery in addition to reducing harm.

4. The reality is that multiple problems and the addiction often will have to be addressed at the same time using a multicomponent and multidimensional intervention strategy. Understanding where the individual is in the process of change regarding each of these problem areas of functioning can assist in planning and sequencing treatment (Connors et al., 2013; DiClemente & Prochaska, 1998; Prochaska & DiClemente, 1984).

5. Finally, it seems critical that the addiction not be relegated completely to the background, no matter what approach the individual in Precontemplation or the intervener uses. Allowing the addicted individual to move the addiction completely to the back burner reduces the potential for the increase in concerns and considerations needed to move out of Precontemplation for recovery.

Addressing Multiple Addictions

In addition to the problems in multiple areas of functioning, many addicted individuals have multiple addictions. Often when they move out of Precontemplation for one of these addictions, they remain in Precontemplation for others. Until recently, few programs that treated alcohol-dependent individuals would make efforts to address nicotine addiction at the same time (Bobo & Husten, 2000; Monti, Rohsenhow, Colby, & Abrams, 1995; J. J. Prochaska, Delucchi, & Hall, 2004; J. J. Prochaska et al., 2008). In fact, until recently AA meetings have been notoriously smoke-filled events. However, the same tolerance has not been extended to alcohol dependence when it coincides with dependence on an illegal drug like cocaine. The synergy between drugs and alcohol has made it difficult for treatment providers to address one and not the other. Nevertheless, a disparity between stages regarding the two addictions is problematic. Demanding movement out of Precontemplation for each of several addictions sets a high standard of achievement for the addicted individual and the treatment program.

Addressing multiple addictions when the individual is in more advanced stages of change for all the behaviors is much easier than addressing these addictions when the individual is in Precontemplation for one or more of them. Allowing someone to be in Precontemplation for one substance while working on changing another addiction can be risky. However, some multiply addicted individuals have successfully changed one behavior without changing all the others. Addressing

some of these successively, as has been done with alcohol and nicotine in many cases, is another strategy that can be considered. Medications also complicate the approach to multiple addictions since often they are used to manage one class of substance (methadone and buprenorphine for opioid dependence). Polysubstance users can see this as permission to continue use of other substances. Treatment providers must recognize the synergy across addictive behaviors and the complications presented in changing multiple behaviors.

CASE EXAMPLES AND OVERVIEW

In Precontemplation the person is striving to manage any consequences, problems, personal unease, or environmental pressure in a way that allows for continued engagement in the addiction. Their change process activity is focused on avoiding consideration of change and supporting the addiction (Table 7.1). If the processes and markers of change continue to support the addiction, individuals in Precontemplation appear very difficult to influence and impervious to change. The secret is to find some seeds of discontent and cultivate them.

Peter is a 40-year-old, divorced father of two who has been using illegal drugs since college, when he began using marijuana. He became a heavy marijuana user in his late 20s and had difficulties keeping up with his job at a high-tech software development firm. He was fired from that job and became a freelance computer consultant. His wife, who married him in college and initially was tolerant of his marijuana use, became more adamant about his quitting drugs when they began to have children. Peter hid his habit and pretended to quit. The loss of his job and erratic income from his consulting work increased marital conflict, and he began to stay away from home until late at night. Fed up with his behavior and his refusal to go to counseling, his wife divorced him. Peter explained to his parents that he and his wife grew apart after college and that she changed and wanted someone who was into making money and being middle class. He did not share those values. When his parents asked him about his drug use, he exploded and told them that he was responsible for his own life and that his wife was using that as an excuse to divorce him.

Over the past 5 years, Peter began to use heroin and to hang out with some individuals who were drug dealers. He worked for them in setting up computer programs that were protected and creating codes and complicated routings for e-mail communications. His access and involvement with drugs and his alienation from his children and family grew. His sister, Margaret, who had been close to him while growing

TABLE 7.1. Precontemplation for Recovery: An Overview of the Dimensions of ChangeStage task

Discovering any consequences and concerns about the problematic pattern of addictive behavior that arouse consideration of change.

Change processes at work

Cognitive/experiential processes that have been used primarily to support continued use in the face of negative consequences shift to promote awareness of and concern about the addictive behavior, spurring movement out of Precontemplation.

Consciousness raising: Focus is on finding reasons and experiences that challenge views that the addictive behavior does not cause problems.

Emotional arousal: Experiences that counter reveling in the benefits of the addiction and highlight negative reactions and consequences associated with the addiction.

Self-reevaluation: Shifting discussions away from issues of independence and alternative causes of consequences (rationalizing) and onto values and considerations that create dissonance; moving from rebellion to personal realizations.

Environmental reevaluation: The person sees environment as challenging engagement in the addiction; reevaluates environmental concerns and impact of the addiction.

Social liberation: The person begins to realize shifting societal norms and how policies and laws attempt to control the behavior or provide alternatives.

Markers of change

Decisional balance: Although usually weighted strongly toward continued engagement, begins to increase the focus on negative consequences of the addiction.

Self-efficacy: Some doubts begin to surface to counter the false sense of self-control and hope begins to emerge to neutralize any sense of hopelessness about change.

Context of change

Multiple problems in various areas of functioning keep increasing but often distract the Precontemplator from focusing on the addiction and can become an alternate focus of concern or intervention.

up, did not give up and continued to call him and tell him that she was concerned for his safety. Although he believed that this alternative lifestyle was acceptable and that she was overreacting, he did have his doubts at times, particularly when she called as he was coming down off the heroin. He also was beginning to have some concerns about being around the drug dealers if there were a police raid and being

implicated in drug dealing. However, the doubts were soon erased by another dose of drugs.

Peter offers a picture of someone with a well-maintained addiction who is in Precontemplation for stopping use. Although he does have some vague concerns about consequences of his use, both the reinforcing drug effects coupled with his protective stance toward his drug use and lifestyle make serious consideration of change difficult. The constant concern of his sister and his beginning awareness of some negatives offer a ray of hope.

Patricia was a 38-year-old, single, advertising salesperson with a large ad agency. She was living with her boyfriend of 2 years, Britt, who worked on the creative side of the agency. Patricia was a heavy drinker who could drink many of her male colleagues and customers under the table. This was a real advantage in her business but was met with a combination of admiration and disgust by these same colleagues and interfered with her establishing intimate relationships with girlfriends and potential male partners. She often dated someone anywhere from several months to a year and then broke up when they talked about marriage and family. Her parents were very frustrated with her lifestyle and continually lectured her about drinking and her refusal to marry. Her father was a heavy drinker for most of his life but recently had stopped and nagged her to join AA. Patricia had always been headstrong, but did suffer from bouts of feeling depressed about life. In adolescence, she had considered suicide but decided against it. When she became popular because she would go out drinking with the guys in high school, she felt better about herself but always had some nagging doubts about her self-worth and her ability to love someone.

In the past 3 months, several events created additional stress and caused problems for her. Her boyfriend, who had been tolerant of her drinking and used marijuana recreationally himself, began to pressure her about their relationship, a lack of intimacy, and her unwillingness to commit to him. She began staying later at the bars with her colleagues, and in the previous month was stopped while driving home and charged with driving while intoxicated. She hired a good lawyer, who assured her that he could either get the charge dismissed or get her probation. However, he did ask her to go to an alcohol treatment program to get an evaluation so he could use this in court to preempt any mandated treatment. She was scared about the legal ramifications and the possibility of a criminal record. At the same time, her father became more aggressive in his efforts to get her into AA. Patricia was becoming more and more depressed and began calling in sick at work. She would sit at home and drink most of the day.

When she went to the treatment facility for an evaluation, the

counselor noted many different problems. In terms of the process of change, she seemed in very different places regarding each problem. His analysis of the problems and her stage status regarding them is illustrated in Table 7.2. Patricia believed her drinking was functional and an asset to her in work and relationships. The drinking and driving was a mistake but was caused by the conflict and arguments with her boyfriend, not her being an alcoholic. She was angry at him that night and drank too much. She lived with her father when he was an alcoholic, and her drinking did not compare to his. However, she was concerned about the legal issues and was willing to do what she could to resolve them. When the conversation turned to her relationships, she admitted that she was difficult to get along with and that she has problems with intimacy. She felt these would be fixable if she found the right person to be with. At this point she was not sure if this boyfriend qualified. She alluded to issues related to her parents and their relationship but dismissed these because she had been living on her own for more than 15 years. She began to cry when discussing the possibility of losing her job because of her current performance. Work was essential to her well-being, and she was very concerned about functioning well enough to perform effectively at work. This led to a discussion of her feelings of depression.

Patricia presents a typical, complicated pattern of problems and of her willingness to address each of these. The challenge for the counselor is how to begin addressing the targeted drinking problem and, at the same time, not ignore the multiple problems in the context of change.

ONCE BEYOND THE RESISTANCE

If the individual in Precontemplation can begin to engage in more objective and more honest self-assessment, then he or she can begin a self-reevaluation process that can lead to the Contemplation stage. In order to move into Contemplation and begin to seriously consider change, the person must begin to reevaluate the addictive behavior in terms of its costs and benefits. In addition, there probably needs to be some hope or expectation that change is possible and that it would bring some benefits.

There is, however, no guarantee that this self-reevaluation process will lead to contemplation of change. One of the dilemmas that many therapists and family members of a person in Precontemplation face is that the process of change is in the control of that individual. The family concerns are often dismissed, as in Peter's case. The addicted individual can briefly look at these concerns and consequences and decide that what is best at this point is continuing to drink, drug, or gamble.

TABLE 7.2. A Problem by Stage of Change Analysis for Patricia

Problems	Stage of change			
	Precontemplation	Contemplation	Preparation	Action
Alcohol dependence	x			
Context of change				
1. Depressive symptoms		x		
2. Beliefs about intimacy		x		
3. Conflicts with boyfriend		x		
4. Family conflicts	x			
Legal problems				x
Work problems			x	
5. Avoidant personality characteristics	x			

Ultimately, the decision is always up to the person engaging in the addictive behavior.

Not all types of treatments available for individuals with addictions are appropriate or efficient ways to assist those in Precontemplation. For instance, in a 4-week inpatient treatment program, program staff may spend a lot of time arguing with clients in Precontemplation about whether they have a problem. This can be an expensive and not very efficient way to move someone in Precontemplation forward in the change process.

If we can get the person in Precontemplation to come into treatment at all, it is not always clear how best to deal with him or her. Mandated treatment can produce attendance at treatment without producing movement through the stages of change, as my taxi driver illustrates. However, it can provide an incentive to consider change. Treatment programs that are more sensitive to the needs of those clients in Precontemplation may have a better chance at helping to motivate movement to Contemplation. Accurate and objective personal feedback is thought to be particularly helpful for these clients in some treatment approaches like Motivational Enhancement Therapy (Miller, Zweben, DiClemente, & Rychtarik, 1992). However, the truth is that we need to learn more about effective ways to meet and move the individual in Precontemplation toward Contemplation, and we need to teach frontline staff how to engage and influence these individuals.

One of my former graduate students examined the processes of influence and persuasion to better understand how to reach and influence the addicted individual in Precontemplation. Persuasion research often focuses on how salespeople attempt to influence potential customers who are “only looking” or who are clearly ambivalent about a purchase (Cialdini, 1988, 2007). There are several techniques and strategies that seem to be effective. The *foot in the door* strategy requires using approaches that open the door to discussion only a little. Once inside the door, there can be a more elaborate sales pitch, but that cannot happen without the entry and the initial openness produced by the foot in the door. *Small steps lead to big steps* represents another influence technique that gets the individual to do something small (looking at or reading something, 2 minutes of a survey, taking a test drive) to begin a process that leads to a much larger commitment. Sometimes the reverse is also true. If initially a lot is asked of an individual (a \$100 pledge) and then the caller asks for only a \$10 contribution, the person can evaluate the second demand as more reasonable and desire to compromise by giving this much smaller sum. All these techniques are interesting ones to consider for use with the individual in Precontemplation and offer some insight into learning how to persuade this person to move

to Contemplation. However, interactions with the individual in Precontemplation cannot be a game. For long-term change to be successful, the person must buy into the process and not feel manipulated. Once a consumer has bought and used an item, it can be difficult to return it. However, those considering moving into Contemplation can always return to Precontemplation if dissatisfied with the alternatives, as can happen with our treatment dropouts.

Another issue is how to distribute assistance and resources needed for recovery efficiently and effectively to those in Precontemplation. Although there are always limitations on resources, the ultimate solution would be one that offers a variety of options for engaging the individual at this stage of change. We should be proactive in reaching out to addicted individuals in Precontemplation for recovery during specific teachable moments or windows of opportunity (O'Donnell et al., 2013; Soderstrom et al., 1997). The efforts to create screening and referral programs in health care settings (such as SBIRT, mentioned earlier) have shown promise in creating movement toward change but not with all substances (Fuster et al., 2016; Heather, 2014; Saitz et al., 2014). However, the critical part of this program is the Brief Intervention and teaching how to engage individuals who have no intention to change. We need to develop programs that can reach out to those in Precontemplation with concern and caring, as well as feedback and advice when acceptable, and create effective engagement interventions for those who are mandated or coerced into treatment (Donovan & Rosengren, 1999). My personal fantasy would be to see more early intervention, programs to decrease stigma that make acknowledgment more difficult; better coordination between the courts and the treatment systems with clear delineation of responsibilities and responses to resistance and relapse; and families and helpers better trained in meeting and managing Precontemplation. The recent Surgeon General's Report on Facing Addictions in America represents an important beginning (U.S. Department of Health and Human Services, 2016b).

Specific approaches to target individuals in Precontemplation are being developed with research designed to measure sensitively the outcomes of various strategies. For example, there is some evidence that reaching out to smokers who are in Precontemplation may be more effective than waiting for them to ask for help (Prochaska & Velicer, 1997a). In a matching trial of alcoholism treatment, outpatient alcoholics who were higher in state/trait anger (more rebellious) had significantly better drinking outcomes when given motivational enhancement therapy (MET) than when given cognitive-behavioral therapy (CBT) or 12-step facilitation (TSF), and low-motivated alcoholics had slightly better long-term outcomes at 1 year but not at 3 years in MET compared

to CBT (Project MATCH Research Group, 1997a, 1997b). Some brief motivational interventions work well for individuals in Precontemplation (Heather, Rollnick, & Bell, 1993; Yahne & Miller, 1999). However, others may not be intensive or comprehensive enough to shift the decisional balance for the most resistant individuals (Dolan-Mullen et al., 2000; Haug, 2002; Velasquez et al., 2000). We may need to combine motivational approaches with other types of treatments to maximize the potential for movement (Moyers & Houck, 2011). Studies and data on what can work for the least motivated are increasing but still provide only preliminary data. Much additional work is needed to understand how individuals move most effectively from Precontemplation to Contemplation and beyond.

SUMMARY

Issues and characteristics of Precontemplation for recovery have been discussed in detail in this chapter. However, much more scientific research and societal consideration of these issues are needed to create an atmosphere where addicted individuals in Precontemplation are encouraged, coaxed, and prodded to consider change without interfering with the personal processes needed to initiate serious consideration of change. The optimal goal for society and the addicted individual in this stage of change is movement into Contemplation.

CHAPTER 8



The Decision to Change

Moving from the Contemplation Stage to the Preparation Stage of Recovery

Considering change is an exercise fraught with tension and ambivalence. Chronic Contemplation and an impulsive rush to action are the Scylla and Charybdis of considered decision making.

CONSIDERING CHANGE

Contemplation, or thinking about changing an existing addictive behavior, is an important step in the process of successful recovery. However, addicted individuals tend to be impulsive and seek immediate gratification. They rush into an activity, failing to consider its costs and benefits. They tend not to anticipate or prepare for problems. Albert Ellis labeled the addicted individual's diminished capacity to delay gratification as "low frustration tolerance" (Ellis & Dryden, 1987). This tendency to avoid the ambiguity and frustration of decision making can interfere with the critical tasks that need to be performed in the Contemplation stage.

Addicted individuals often find it difficult to consider change long enough to make a good decision. Substance abusers interviewed during treatment intake often state that they have suddenly decided to quit. They appear convinced that they will succeed no matter what happens. There is little sense that they have considered all the actual positive aspects of the substance use or the real difficulties that changing these

behaviors would entail. Most of their reasons for change involve legal or family pressures. The prognosis for such individuals should be considered guarded at best.

On the other hand, many addicted individuals get stuck in chronic Contemplation. One alcohol-dependent individual was able to deal with several related problems in therapy but he continued to drink, although he seriously considered quitting. He was killed in a drinking-related accident as he was crossing a busy highway. Some others, like the taxi driver from Chapter 7, move forward out of Contemplation only after a lengthy period spent considering change. It takes time for them to finally recognize and appreciate that the cons of continuing exceed the pros. Only then are they able to move into the Preparation and Action stages. Chronic Contemplation does not mean these individuals are incapable of change. They are simply not convinced of the need for change or have not found a compelling reason despite the clear and present danger of the addiction.

Decision making is the critical outcome of Contemplation and marks the beginning of Preparation. Janis and Mann (1977), who originated the *decisional balance* schema for understanding decision making, warn their readers:

Our analysis of decision-making behavior assumes that in the repertoire of every person is a proclivity to procrastinate or, if that is not possible, to invent rationalizations for ignoring the worrisome doubts that make for decisional conflict. Procrastination and rationalizing are components of the pattern of *defensive avoidance*, a means of coping with the painful stresses of decision making that can be as detrimental as the pattern of overreacting to impending threat by taking impulsive, ill-considered action in a state of panic. (p. 6)

This insightfully describes the opposing approaches to decision making in the process of addictive behavior change. Impulsive and insufficiently supported decision making often leads to problematic change attempts characterized by poor planning and inadequate commitment. These failed and inadequate attempts then support the belief that changing the addictive behavior is hopeless. On the other hand, chronic contemplation and protracted procrastination lead to ambivalence looking like a stable trait rather than a transient state. It is no wonder that decision making can undermine as well as promote change and that a decision adequate to support a sustained change process can consume so much time and energy.

Individuals will make decisions based on the expectation that the gains for a proposed course of action will exceed the losses associated

with that action or behavior change. This tipping of the decisional balance in terms of the comparison of these two psychological vectors is hypothesized to influence decision making and consequent action. Janis and Mann (1977) state that it is not the absolute value but the comparative value of the gains and losses that has the greatest impact on the decision. Thus a person may tolerate a less than optimal situation or behavior if the alternative is expected to yield a worse outcome. It is essentially a risk–reward analysis that underlies personal, economic, societal, and behavioral decisions (McEachan et al., 2016). Behavior economics and game theory offer ways to understand impulsive and rational decision making that influence individuals, systems, and countries to delay or take action (Bickel, Moody, & Higgins, 2016; Nowak, 2006).

The primary tasks of Contemplation are (1) gathering decisional considerations, (2) examining them, and (3) engaging in the comparative process that would resolve decisional conflict. The goal of Contemplation is a firm decision to change. This is needed to move effectively into Preparation. The work of Contemplation involves an extensive, personal, and accurate evaluation of the pros and cons associated with the addictive behavior and the prospect of change. This evaluation occurs before addicted individuals enter treatment as well as during treatment, so that the process of decision making can be examined as it occurs in the natural environment as well as during treatment. Only after we understand the tasks of Contemplation can we examine techniques and approaches that could promote decisional considerations and tip the decisional balance toward change. The same strategies that tend to keep individuals in Precontemplation continue to operate in Contemplation. When individuals begin to seriously consider changing the addictive behavior, often they are ambivalent and continue to engage in rationalizations, become rebellious or reluctant, or begin to feel helpless and resigned to being addicted. In fact, these ways of managing information contribute to chronic contemplation (DiClemente & Velasquez, 2002). Consequences, motivation, resistance, denial, and ambivalence continue to be important elements in promoting and hindering change in addictive behaviors throughout the process of change. This chapter describes the critical tasks of the Contemplation stage and the types of activities and interventions needed to advance the process of intentional behavior change to the next step of preparing for action.

Understanding Contemplation

In our research, we have classified individuals who report *seriously considering* stopping the addictive behavior *in the next 6 months* to be in the Contemplation stage of change. Although the time frame is somewhat

arbitrary, it is important that the individual be considering change *in the near term* or the *foreseeable future* to distinguish it from vague wishes or future desired change. This time frame may also need to be adjusted when dealing with adolescents whose developmental perspective on the foreseeable future may be much shorter. The task of the person in Contemplation is to consider the costs and benefits of quitting to make a firm decision to quit or modify the behavior. Contemplation typically requires engaging in consciousness-raising activities. In Contemplation, views of the pros and cons of the behavior can be rather balanced but often are tipped in favor of continuing the addiction. These individuals differ from those in Precontemplation in that they are beginning to engage in cognitive and experiential change process activities that support consideration of change and involve preparatory change talk (DiClemente et al., 1991; Miller & Rollnick, 2013; Prochaska & DiClemente, 1986; Prochaska et al., 1991). These individuals are actively and seriously considering change in the foreseeable future. Successful resolution of Precontemplation tasks yields an initial awareness of the problem and of the need to change. During Contemplation, this awareness becomes an active consideration of the problem and a weighing of the risks and benefits of continuing the addiction or making a change.

The dimensions of change identified in the TTM offer a clear view of how this happens. The critical marker of change, decisional balance, measures the relationship between the pros and cons for change. As the individual moves toward a decision to change, there is a shift in the importance of the pros of change in relation to the cons. The cognitive/experiential processes of change fuel this shift in decisional balance. Specifically, the individual's consciousness-raising activities and the feedback given by those offering a helping relationship provide information and data. If provided in a way that allows the individual to process it, this information then interacts with self-reevaluation, environmental reevaluation, and emotional arousal processes, which produce new experiences and evaluations that affect decisional balance. The behavioral processes of change are not very involved at this point in the recovery change process. Self-efficacy to quit the addiction seems to be relevant only insofar as a modest amount of it is needed so that the individual avoids becoming discouraged about the possibility of change and giving up even on the contemplation of change. Problems and issues in the various areas of functioning that are described in the context of change offer important decision-making information about the consequences of the addiction. However, these contextual problems can also distract the focus of the individual in Contemplation from the examination of the pros and cons, contributing to the ambivalence and procrastination that interfere with resolving Contemplation stage tasks.

The Decisional Balance

Each person's decisional considerations are unique. Every reason has both rational and emotional dimensions that appeal to the head and the heart, respectively. There can be many reasons that are intellectually convincing but have little personal emotional importance. On the other hand, a single consideration that is intellectually less convincing can have enormous emotional significance and personal value. This makes understanding anyone's decisional balance tricky, because an observer would have to gain access to the personally relevant considerations and their significance in the addicted individual's inner world. However, that world is most often rather chaotic, influenced by brain neurochemistry, coercive forces, personal secrets, social influences, and a host of historical experiences and subtle implicit attitudes and less conscious forces (Bargh & Chartrand, 1999; Chassin et al., 2010; Field & Cox, 2008). An evaluation of the pros and cons is not simply an intellectual, rational experience. That is why both cognitive processes, like consciousness raising, and experiential processes, like emotional arousal and self-reevaluation, are important in shifting the decisional balance. In our research, increased engagement in the cognitive/experiential processes of change has been associated with higher endorsement of the cons of an addictive behavior (Velasquez et al., 1999).

Decisional considerations and the balance between positive and negative considerations are important markers of movement through the early stages of change (Prochaska, Velicer, et al., 1994; Norcross et al., 2011). The pros for an activity or behavior—smoking or drinking, for example—are generally high during Precontemplation and Contemplation, which would argue against change (DiClemente et al., 1991; King & DiClemente, 1993; Prochaska, Velicer, et al., 1994; Velicer et al., 1985). Conversely, the cons or negative aspects of the addictive behavior are generally low in these same early stages. Thus the *positive and negative aspects of the addictive behavior* and an individual's experience with the addictive behavior influence consideration of change. In addition, the consideration of the *gains and losses of the anticipated change* also have an influence. Many strong positive reasons for continuing an addictive behavior include consideration of potential losses and problems associated with stopping the addictive behavior (Klingemann, 1991; Miller, 1985; Miller & Rollnick, 1991, 2013). Positive and negative considerations about the behavior and the change include not only utilitarian gains and losses for self and significant others but also approval and disapproval from self and significant others (Janis & Mann, 1977).

An example of the decisional considerations for Carrie the

Contemplator illustrates the scope and balance of the considerations and how complicated the decision-making process can be (Table 8.1). For Carrie, the considerations that argue *against change* include the utility of her drinking in managing her anxiety in social settings and enabling her to be sexual with men she meets, her perception that she is more popular and accepted when drinking, and alcohol's ability to dull painful feelings related to family rejection. In addition, she has many reservations about how life would be without alcohol. She fears losing friends, going "crazy," and not having any social life. Some of these fears are fueled by her implicit and less conscious views of nondrinkers as losers and significant doubts about her attractiveness. On the other side of the ledger are her decisional considerations that would *promote change*. These include her feelings of guilt and embarrassment when she cannot remember what happened the evening before, the recent arrest for a DWI, some friends' complaints about her drinking, and some problems at work that might be related to her being hung over. In addition, stopping drinking may help her to settle down and begin to have the children and family she has always wanted. Although not always explicit considerations, these implicit attitudes about family are important decisional considerations. Getting control of her drinking could also improve her relationships with her parents and her brother, who have been avoiding her. The importance and current significance of these considerations feed into the decisional balance about changing her drinking. For Carrie, it can seem like she is in a boiling pot of conflicting implicit and explicit considerations that are influenced by ongoing events supporting or undermining her decision making. Sometimes avoidance and seeking the comfortable escape of the addiction seems the best alternative.

TABLE 8.1. Carrie's Decisional Balance Considerations

No change	Change
Pros (drinking)	Cons (drinking)
<ul style="list-style-type: none"> • Manages anxiety • Enables sexuality • Acceptance • Dulls feelings 	<ul style="list-style-type: none"> • Guilt • Memory loss • DWI arrest • Complaints • Work problems
Cons (change)	Pros (change)
<ul style="list-style-type: none"> • Loss of friends • Going crazy • No social life 	<ul style="list-style-type: none"> • Children/family • Parental acceptance • Brother's acceptance

Shifting the Decisional Balance toward Change

Even when active consideration of costs and benefits begin to be weighted in favor of change, a firm decision does not always follow. Ambivalence and procrastination complicate the process. There is the very human tendency to generate a pro for every con and a con for every pro. On the one hand, smoking can cause lung cancer; on the other hand, I am young and have a few years before I need to quit. So far, I have been lucky avoiding a heroin overdose, but there is nothing that can replace the high. Feeding both sides of the decisional balance scale represents the ambivalence that individuals often experience about any kind of change, be it about job, home, or even what type of restaurant to go to for a night out. A second complication is the fact that changing our views is only partially influenced by more logical “propositional” consideration of risks and rewards. Implicit, less conscious associative constellations of experiences carry important emotional weight that is added to our decisional considerations (Gawronski & Bodenhausen, 2006). Finally, the propensity to procrastinate when faced with a decision that is hard to make or perceived as difficult to implement influences decision making. Our research has demonstrated that individuals can spend long periods of time in this Contemplation stage (Carbonari et al., 1999; Prochaska et al., 1991).

It is difficult to summon the energy to overcome the ambivalence that fuels procrastination. As Miller and Rollnick (1991, 2013) describe in their book *Motivational Interviewing*, feeling two ways about things is normal. Dealing with ambivalence is the critical task of increasing motivation to change. The best strategy to resolve ambivalence appears to be to bring to light all the considerations on both sides of the ambivalence. My experience indicates that individuals trying to change often attempt to restrict considerations to only one side of the ambivalence. They often will amass all the negatives of the addictive behavior in the hopes that this evidence will automatically move them to change. However, this strategy misleads. Focusing only on the negatives gives the sense that the behavior is totally bad and completely problematic. This leaves individuals bewildered by their inability to make a firm decision to change and turn that decision into a successful long-term change. Statements like “I know that it is terrible for me but I just can’t seem to quit” or “I just don’t understand how I can continue to do something that is so bad for me” indicate a strategy that loads up on the cons, underestimates the pros of the addictive behavior, and fails to explore the less conscious emotional connections and associations related to the addictive behavior.

I confront this strategy by asking the addicted individual to elaborate on the positives of the behavior. If he or she says there are few or no positives and goes on and on about the negatives, I ask whether the client is completely irrational and out of touch with reality. Usually the client is surprised by this question. Then I offer my reason for asking: If people believed there were no positives to the addictive behavior and only negatives, they would be acting irrationally to continue to engage in the behavior. If there were no positives, change would not pose a problem. Most often this challenge to their exaggeration of the negatives leads to a more helpful discussion of the usefulness and value of the addictive behavior to the individual.

An accurate evaluation of what role the behavior plays in the life of the addicted individual appears to be an important element in fostering serious consideration of change. However, it is important to realize that timing and emphasis are important when working with ambivalence. Sometimes emphasizing all the benefits of the current addictive behavior may contribute to ambivalence (Miller & Rose, 2015), increase what is essentially “sustain talk” (DiClemente, Kofeldt, & Gemmell, 2011), and lead to chronic Contemplation. This is true both in individual and group treatments. In motivational interviewing terms, focusing on the “sustain talk” or arguments against change can prolong ambivalence and, in group settings, can trigger a “sustain talk downward spiral,” where group members reinforce the difficulty and impossibility of making a change. To avoid enhancing ambivalence and instead support reasons for change, decisional balance interventions must focus on increasing the personal meaning and importance that would promote change.

Bringing into the foreground both the positive, helpful aspects and the negative consequences and risks of the addictive behavior can help the individual weigh the positives against the negative consequences more effectively. Building the “change” side of the analysis and being able to counter or undermine the “no change” side of the balance is critical to promoting decision making. In doing so, it is essential to focus not simply on the number of considerations but also the importance and value of the considerations (Velasquez et al., 2015). During Precontemplation, awareness of the problems and consequences of the addiction have been increased by engaging in consciousness raising and self-reevaluation processes of change. Reevaluation processes of change continue in Contemplation. Until a serious and realistic assessment concludes that the negative aspects of the behavior and positive aspects of changing are currently more important than the opposite considerations, the decisional balance will not support a solid decision or a sustainable attempt to change.

Individuals may move forward in the process to Preparation and Action even if the decision is weak and not well supported by important personal values. However, this tenuous decision will undermine commitment and planning and ultimately make the attempt at change problematic. Relapse, in this case, can represent less a problem of low self-efficacy, strong cues, or addiction-infested environments and more one of problematic decision making.

Social cognitive theory has provided extensive descriptions of the self-regulatory mechanisms that can increase experiential processes and affect the decisional balance at this Contemplation stage of change (Bandura, 1986). Self-observation is a critical part of self-regulation, as are the personal judgments made about these observations. In fact, self-monitoring has become a standard part of almost every treatment program. Initially, self-monitoring was considered simply a means of getting an accurate baseline recording of the behavior. However, self-monitoring quickly became recognized as an intervention itself, often reducing the target behavior before any additional intervention was implemented (Craighead et al., 1995; Korotitsch & Nelson-Gray, 1999). Becoming mindful of the frequency, situational specificity, and amount or intensity of the behavior provides the individual with information that may challenge his or her current assumptions about the behavior and the level of control he or she has over it. As Bandura described, individuals then use this information in a complex process involving multiple judgments and comparing the current behavior to internal and external norms. Ultimately, this process leads to self-evaluations and self-reactions that promote decision making, whether the decision is to change or not to change.

Personal and social norms offer another avenue for intervention. Providing information or role models to support or challenge perceived norms can affect the decision-making process. For example, in the motivational enhancement therapy developed for Project MATCH, therapists provided information about the pattern of alcohol consumption reported by the client (Miller et al., 1992). Feedback to the client included a statement comparing current consumption to national norms. The statement would indicate, for example, "your level of drinking is at the 95th percentile of drinkers in your age and gender group, which means that you drink more than 95 percent of drinkers in the United States." For many, this objective feedback challenged an assumption that their drinking was not different from most of their peers. Such information can create a reevaluation of the behavior. In fact, prior to this feedback many of these drinkers believed that they were drinking like most other drinkers. Feedback is even more powerful when multiple observations support it, especially if there is a pattern to the behavior. In working with clients in

therapy, feedback has been most effective when I listened long enough to see a pattern and could give multiple examples of it from the client's life. In a similar vein, AA meetings can provide role modeling that influences these internal and external norms and engages the helping relationship process of change. When treating medical professionals who have alcohol problems, I tried to get them to go to an AA meeting where doctors and nurses attend. This kind of group is more difficult for the professional to discount and more relevant for spawning direct comparisons about personal situations and drinking behaviors.

It is also important to realize that many spontaneous events in the lives of individuals considering change can be "tipping points" for change (Gladwell, 2000). Events connected to the addictive behavior that are personally meaningful (a smoker's close friend who has a heart attack, a drug-using friend who overdoses, a neighbor killed by a drunk driver) can dramatically shift decisional considerations and trigger change. Sometimes it seems that change happens abruptly. However, although tipping points may appear precipitously, most often their role is not to create new motivation out of thin air, but rather to activate latent motivation or resolve ambivalence.

Many techniques used in motivational enhancement therapy were designed specifically to promote more complete and effective decision making. Therapists were trained to discuss the "good and not so good aspects of the drinking," to reflect back to the client the ambivalence with "double-sided reflections," and to listen carefully for both the positive and negative considerations and environmental wake-up calls (Miller et al., 1992; Miller & Rollnick, 2013). They asked for the client's personal evaluation of the problem and *not* simply that of spouse or family. Finally, they were taught to offer frequent summaries of the decisional considerations. These were all strategies geared to promote the client's decision-making process. In all these techniques, the objective is to get the client to acknowledge personal data and information to heighten realization of the social norms and personal consequences, and to raise consciousness of their conflicting agendas they likely have not been actively processing.

Thus there are many strategies and techniques that can be used to engage various cognitive/experiential processes of change and to promote movement through Contemplation to Preparation. Here again it is important to realize that there is no magic formula. Most critical is what goes on inside the individual. That process must produce a convincing shifting of the decisional balance toward making the commitment and developing the change plan. This is not easy. Individuals in Contemplation who fail to gather enough data about benefits and risks do not have a complete picture of the pros and cons of changing the addictive

behavior. Such deficits in decision making can undermine commitment and eventually implementation of an action plan. Many addiction researchers consider a relapse in quitting an addictive behavior to be a defect in the Action stage of change. However, part of the vulnerability for relapse may lie in failure to create an adequate decisional balance in Contemplation. Firm and well-founded decisions support action better than less-considered ones.

Helping or Hindering Contemplation and Decision Making

The Contemplation process, even when it is not chronic, takes time. The individual, not the treatment provider or family, determines its timetable. Thus it can be a particularly frustrating stage for helpers, family, and friends. Ambivalence and procrastination are understandable when *I* am the one making the decision. However, these can be maddening to me when *you* must decide. The challenges for family, friends, and helpers of the person in Contemplation can seem as daunting as those discussed for Precontemplation. Family reactions are often the same as with someone in Precontemplation: keeping quiet, not making waves by bringing up the addictive behavior, or launching angry and blaming confrontation often fueled by years of frustration.

The strategy of not making waves tries to ensure peace in the home and reduce any additional stress. The hope is that the individual will realize the nature and extent of the problem on her or his own, or that reducing stress might reduce the need to engage in the behavior. However, this strategy most often neutralizes the very important and powerful influence of interpersonal feedback and approval that can be provided by family and friends. Indeed, when family members are trying to passively ignore or actively hide the problem behavior, the family system can take on a conspiratorial air. However, typically when this happens, family members have already tried to bring up the issue multiple times and have witnessed or experienced very negative consequences when they did so, with no resulting behavior change. Thus family members who do not make waves are not only subject to the stigmatizing labels of “enablers” or “codependent” (Beattie, 1986; Cermak, 1986), but they are also faced with the dilemma that peaceful coexistence often promotes the status quo and not change.

Feedback can be helpful to individuals in Contemplation, but when it takes the form of frustrated and angry confrontation, there are many problems. The most obvious is that loved ones’ anger often occurs when the addicted individual is intoxicated, but giving feedback in these circumstances is highly unlikely to produce any significant or memorable information processing for the intoxicated person. There is a

phenomenon called “state-dependent learning”—individuals who learn something in an intoxicated state remember it better in that intoxicated state and have problems remembering it when sober (Knight & Longmore, 1994). In many confrontations, what the addicted individual learns is, “When I am intoxicated, my spouse, friend, or family member explodes.” So, in the future, as the individual becomes more intoxicated, he or she learns to avoid going home and interacting with spouse or family member. This avoidance compounds the problem.

A second problem is that many things said in the heat of anger are exaggerated and global. Confrontations often include personal attacks and name calling. Family members may “pour it on” and offer a litany of the ways the addictive behavior has been problematic. This is usually done in anger and disgust. Such interactions tend to feed the self-protective mechanisms of rationalization and denial by allowing the addicted individual to disregard exaggerated or personally demeaning information. Often dire consequences, such as divorce, are threatened, but family members do not consider whether it is a consequence that they are able and committed to follow through. The threat is usually not enacted. With a lack of follow-through, future threats are less likely to play a role in the addicted individual’s decision-making process. Hence, this confrontational strategy does not usually supply usable feedback and promote decision making.

These negative and ineffective aspects of a confrontational strategy are not always easy to see. This is especially true when some reinforcing behavior change immediately follows the confrontation. Yet this behavior change is usually fear driven and externally motivated. Unless the external motivation influences the internal motivation and the processes of consciousness raising, self-reevaluation, and environmental reevaluation, the likelihood is low that successful long-term change has been encouraged.

Both the peace-at-all-costs and the angry confrontational strategies are rather ineffective. Nevertheless, there are ways that significant others can help. Feedback from others about the personal and interpersonal consequences of the addictive behavior can make important contributions to shifting the decisional considerations of the person in Contemplation. However, the individual must hear and process this feedback. As described in Chapter 7, significant others also have control of important reinforcers that can be used to promote personal decision making. But the reinforcing consequences must be used properly and consistently. Promising only what you are willing to do and doing all that you promise is the important advice that I would offer to family, friends, and therapists to ensure that words and actions are credible and powerful.

Suggested Strategies to Promote Contemplation for Change

The following are specific strategies and approaches to help promote decision making that would be helpful for family, friends, courts, and treatment providers:

1. First, provide feedback when there is time and in an atmosphere that promotes openness and listening. The heat of anger, the snide or cynical comment, the critical labeling, and the passive-aggressive or openly hostile stare are not very effective communication strategies.

2. Demonstrate as much objectivity as possible. Be direct and concrete in your discussion. Although change of the addictive behavior would benefit you in many ways, the critical issue is how change can benefit the addicted individual. Make sure to point out that this is how the events appear to you and that the addicted individual may have a different perception. A discussion of different perceptions can be very enlightening and helpful for both parties. Listen as well as talk. In fact, spend more time listening than talking.

3. Provide feedback in the context of concern. Family and significant others need to let go of the anger and rehearse how to give the feedback with concern and love. Interventions have been created to empower family members, friends, employers, and significant others to provide effective, caring confrontation (Landau et al., 2000; Liepman, 1993; Stanton, 1997), but several preparation sessions often are needed to help to defuse anger and frustration that interfere with empathy. The ARISE program begins with telephone calls from family and concerned others with efforts to organize a meeting and then to offer a series of strategies increasing in intensity and complexity that help to engage the individual in treatment or self-change (Landau et al., 2004). Genuine expressions of concern for the well-being of addicted individuals enhance and encourage an exploration of their own concerns.

4. Find effective and doable consequences that reinforce your expressions of concern. The key is to discover meaningful reinforcers to withhold. Actions that reflect concern like refusing to let them drive after drinking or not allowing children or grandchildren in the car with them can be particularly meaningful. Being put on probation at work and a marital separation are other actions that can reach individuals in Contemplation, particularly when these are framed in the context of concern and with an offer of support for change.

5. While consequences can be helpful, it is important also to be cautious about them. They are extrinsic motivators. Sometimes they encourage individuals to act as though they have changed or stop a behavior for a time to avoid the consequence without seriously considering change for their own intrinsic reasons. Intrinsic motives are important for intentional change that can be sustained for the long term (Stotts, DiClemente, Carbonari, & Mullen, 2000).

6. Brief motivational interventions can be particularly helpful during this ambivalent decision-making period. These interventions occur at opportune teaching moments and can provide some relevant feedback in some mundane (routine doctor visit) or more dramatic (emergency department visit) settings and offer important considerations about the addictive behavior and how it may be affecting health and well-being. Of course, reception of the message depends on the effectiveness of the messenger and how motivationally enhancing their approach in conveying the information and the advice is.

The preceding suggestions can be helpful but should not be considered guaranteed methods to move someone in Contemplation forward. They probably work best for individuals who had already done some of the work of Contemplation. In terms of the different tasks of the stages of change, these interventions can provide important decisional input for the addicted individual. Many of the suggested strategies are incorporated in programs developed to engage families to assist in promoting change, like ARISE (Landau et al., 2000; Stanton, 1997), network therapy (Galanter, 1999), and the community reinforcement approach (Higgins, 1999; Meyers & Miller, 2001; Meyers & Smith, 1995; Miller et al., 1998).

The strategies outlined in this section aim to increase the cognitive/experiential processes of change outlined in the TTM and shifting the critical decisional balance marker of change. Whether family and friends offer consequences and concern, or professionals use motivational interviewing, or feedback techniques or peers offer the wisdom of the 12 steps of AA, the addicted individual in Contemplation must become aware of and reevaluate the pros and cons of the behavior and of the change.

THE CONTEXT OF CHANGE AND CONTEMPLATION

Examining the areas of functioning and the context of change can highlight the additional barriers to the decision-making process. The longer the individual is engaged in pursuing problematic engagement in an

addictive behavior, the greater the probability of contextual problems. In the interpersonal area, relationship conflicts with spouse and nonusing friends often increase; family, work, and social network conflicts emerge in the family/system area; and any preexisting problems in self-esteem, identity, and character in the area of personal characteristics also seem to increase. These issues can contribute to ambivalence, distract from decisional considerations, and offer additional pros for the addictive behavior and cons for change. Because addictive behaviors create serious problems in many areas of the addicted person's life, a vicious circle develops.

In Precontemplation, these multiple problems are often experienced by the addicted individual and viewed by the treatment provider as external pressures moving this person into Contemplation. However, during Contemplation these problems can create stress and distress that prevent the individual from moving into Preparation and Action. Often, addicted individuals will begin to consider changing the addictive behavior but then assert that the problems with the marriage or family need to be the focus of effort. The existence of other problems can also interfere with the decision-making process, which needs time for serious thought. This is more difficult when the individual in Contemplation is surrounded by chaos.

Chaos is one of the reasons so many treatment personnel believe that inpatient or some type of residential care is critical to recovery. Individuals surrounded by complicating problems and environments may need time away from the chaotic environment to be able to make a firm decision to change. Often this removal from the immediate environment, and not necessarily medical hospitalization, is most crucial. Programs that offer this type of isolation and time away from the addictive behavior do exist, often either therapeutic communities or private residential programs that can be very expensive. However, as described in Chapter 7, if this time away does not prove effective in fostering movement to decision making and then to Preparation and development of a plan, it may not be the best use of these intensive resources. Continued evaluation of progress is needed for all interventions (Connors et al., 2013, p. 144).

Intensive and extensive treatments are particularly important because the individual who is "dependent" on the addictive behavior physiologically and psychologically has impaired self-control or self-regulation (American Psychiatric Association, 2013; Bates, Buckman, & Bates-Krakoff, 2013; Hilton & Pilonis, 2015). Moreover, in many cases, impaired self-regulation was an important risk factor that helped propel the individual through the stages of initiation of the addiction in

the first place. Regaining self-regulation and some sense of self-control is critical for decision making specifically and the process of change more broadly; this takes time, especially for those who are dually diagnosed or have experienced multiples losses and have few resources (Baumeister & Vonasch, 2015). Abstinence is often needed for recovery of important functions in the prefrontal cortex and in reestablishing self-regulatory capacity (Garavan, Brennan, Hester, & Whelan, 2013). Thus abstinence may be needed to promote decision making. Often it is not the severity of the use disorder but the extent to which self-control is compromised that determines how much time and support are needed to rebuild self-regulation in a protected, scaffolding environment.

The need for more extensive residential treatment is highlighted by several examples. I have served on the board of directors of Gaudenzia and have interviewed successful graduates of its modified therapeutic communities who have spent 9 months to a year building self-control strength, as well as developing skills and completing the tasks of the stages of change. I also have served on the advisory board for Westbridge, a program designed for dually diagnosed individuals using the model developed by Drake and colleagues (Drake et al., 2001). In this capacity, I interviewed many clients and families who shared nightmarish stories of being through multiple short-term (30 days) residential programs with no success prior to finally making their way to longer-term, more comprehensive treatment at Westbridge. The most recent experience that convinced me of the need for long-term residential care for individuals with multiple problems and severe use disorders was an encounter with a young veteran of the war in Afghanistan.¹ Solidly in his third year of the recovery process and well into Maintenance of abstinence from alcohol and heroin by the time I met him, he had experienced sexual abuse as an adolescent and war trauma as an adult, as well as family tragedy and problems. He started drinking at an early age and continued excessive consumption of alcohol throughout his school and Army career, ultimately adding an opiate addiction to the mix upon his return from Afghanistan. He had been through multiple Veterans Administration and other treatment programs without successful change of his severe alcohol and opiate use disorders. Then, his life and addiction were turned around during a 10-month stay funded by an anonymous donor at a residential program. The important point for our discussion of Contemplation is that he mentioned that it took him several months of being alone, walking through the woods, writing,

¹The story of the veteran in recovery was recounted at a public congressional briefing in Washington, D.C.

and talking with someone before he could face himself and his self-destructive behaviors. For individuals with significantly compromised self-regulation, multiple problems, and chaotic environments, time and protected space may be needed to make the firm decisions that could support recovery.

As described earlier, individuals who progress to maintained dependence on the addictive behavior are ones who have integrated that behavior into their lifestyles. Individuals who use the addictive behavior as a problem-solving mechanism for life's difficulties will find the decision to stop the behavior particularly difficult. For them, there is an adaptive component to the addictive behavior that increases the advantages of the behavior and makes its loss particularly difficult to face. When the addictive behavior serves so many functions, solid decision making is compromised and relapse often occurs rather quickly.

Individuals whose primary coping mechanisms involve the addiction need to develop problem-solving and alternative coping skills. Sometimes we may need to help them even while they continue to engage in the addictive behavior. Coping skills training is usually reserved for individuals who have already decided to modify the behavior and are trying to change. However, for individuals whose entire coping repertoire involves the addictive behavior, we may need to begin teaching these strategies as early as Contemplation. In addition to reducing harm and increasing more comprehensive decision making, another goal of harm reduction certainly should be promoting more adequate coping mechanisms.

Multiple problems complicate the process of change for individuals in Contemplation. These problems need to be placed on hold for a time or at least partially resolved to allow individuals with addictions the time and space to accomplish the tasks needed to make a considered and solid decision to change. Keeping focused on the problem of an addictive behavior while assisting with other complicating difficulties seems to offer the best strategy for encouraging an individual in Contemplation to engage in solid decision making and enter the Preparation stage of change.

CASE EXAMPLE AND OVERVIEW

Addicted individuals in Contemplation often go back and forth in their evaluations of the costs and benefits of change. To accomplish the tasks, the cognitive/experiential processes of change need to be engaged to tip the decisional balance solidly in favor of change, as illustrated in Table

8.2. An example of the decisional conflict and ambivalence brings to life the Contemplation stage of recovery.

Conrad is a 45-year-old veterinarian who is addicted to amphetamines and alcohol. He has used “uppers” since he was in his final year in veterinary school. He began using these substances to help with the studies and exams, but now uses them both to help him get more done and to feel good. He was married briefly but has been divorced for more than 10 years. He is not sure if he is gay but does frequent gay bars and has sex with men regularly. Until recently, he believed that he had the perfect life. He loved working with animals and cared for them with

TABLE 8.2. Contemplation for Recovery: An Overview of the Dimensions of Change

Stage task

Gathering and evaluating positive and negative considerations for change, evaluating these in a comparative process, and resolving decisional conflict in order to make a firm decision to change.

Change processes at work

Cognitive/experiential processes, particularly those promoting awareness and reevaluation of negative consequences and positives for change, promoting decision making and movement into Preparation.

Consciousness raising: Discovering negatives of the addictive behavior and positive reasons and expectancies for change.

Emotional arousal: Getting in touch with some core values that would promote change, realizing the negative reactions created by the addiction.

Self-reevaluation: Shifting views and valuing of the addictive behavior to emphasize consequences and of the potential benefits of the change.

Environmental reevaluation: The person begins to realize the impact of the addiction on others and the risks of continuing the addiction in contrast to the benefits of change.

Social liberation: The person begins to see how others in society support and encourage behavior change.

Markers of change

Decisional balance: Weight shifts more strongly toward change because of increasing valuing of pros and cons for change.

Self-efficacy: Growing sense that they could change the addiction.

Context of change

Multiple problems in the life context can contribute to ambivalence, distract from decisional considerations, and can increase the need for the addiction. Sometimes they can promote decision making or may need to be addressed to allow for completion of contemplation tasks.

skill. He was part of a larger practice and another partner did all the bookkeeping that was needed, so he did not have to bother with these “pesky” details. His family lived more than 1,000 miles away and considered him a success but did worry about his not having a wife and family. His drug use fit in with his lifestyle, and he believed that he could control his drug use and drinking whenever he wanted.

Recently, several events have made him reconsider his euphoric interpretation of his life. His frequent sexual partner told him that his drug use was getting in the way of their relationship and he was unsure whether he could continue going out with him. His business partner at work began complaining that he was not billing enough procedures to justify his pay and was not contributing adequately to the business. Conrad has been disappearing from the clinic for long periods of time, claiming that he had other business to do. In reality, he has been off getting high. Most worrisome to him is that one day recently he went home and began seeing bugs crawling on the walls and feeling that people were out to get him.

Conrad has argued both with his business and sexual partners that they were exaggerating things and promised things would change. But his protestations make him uneasy. He has begun to realize that he is getting high more frequently and during the day. He used to do it mostly in the evening. He also has begun using cocaine on occasion, when he can get some at a bar he frequents. There are some women whom he finds attractive in that bar, and he has considered sleeping with them, but overall he cannot imagine going to the bars and getting involved with either a woman or a man without being high. At some level, he knows he should just quit the amphetamines. He could still drink alcohol and that could help. But the alcohol does not give him the same feelings of euphoria and energy. With the pressure at work he could not afford taking time off either to quit using or to get help. He wonders if maybe he could just cut back and hide his drug use a bit more, get the problems at work straightened out, and then think about quitting over the summer when he has some vacation time coming.

Conrad’s rambling considerations of pros and cons represent the twists and turns of Contemplation, sometimes leaning toward complete change and sometimes against. A middle ground offers some solace that he is making progress and allows for delay of the “ultimate” solution. Ambivalence makes the road particularly winding. The role that speed plays in his life is significant. Relationship issues and sexual identity conflicts complicate consideration of whether and when to change. If he allows the problems of work and relationships to become more salient and can counter his fears about change more effectively, Conrad could decide and commit to a more complete change.

SUMMARY

The Contemplation stage begins the important work of decision making in the process of change. Evaluating the pros and cons of both the addiction and the change are at the heart of this stage. What is needed to move into Preparation is a decision that is firm and supports a commitment to follow through with the change attempt soon. Ambivalence, procrastination, indecision, environmental barriers, compromised self-regulation, and multiple other problems can interfere with the reflection, self-reevaluation, and cognitive processing that are needed to move the individual through this Contemplation stage. Family, friends, medical providers, and treatment personnel can influence this process but must do so with caution and caring.

CHAPTER 9



Preparing for Action

Creating Commitment and a Plan

Planning and a sense of purpose and commitment are essential for effective action, although not always valued by addicted individuals.

BE PREPARED

The Preparation stage of change follows decision making and precedes significant action. Preparation tasks focus on securing the commitment and doing the planning needed for successful action. The advertising slogan “Just Do It” may contain an important message for routine procrastinators, but it is a dangerous message for anyone attempting to change an addictive behavior. Individuals would not be diagnosed as addicted if they could *just do it* without thought or preparation. The inability to change despite serious attempts to change is a key element of a diagnosis of addiction (American Psychiatric Association, 2013).

The main tasks of the Preparation stage are (1) making and strengthening a commitment adequate to support the attempt to change; (2) prioritizing and allocating resources; and (3) developing a plan for action that is sound, reasonable, and feasible for the individual to implement. Action plans lay out what is needed for this individual to successfully quit or modify the addictive behavior. This chapter highlights the need for Preparation and the challenge of building an effective plan of action.

Defining Characteristics of Preparation

The transitional nature of the Preparation stage is reflected in the dimensions of change. Alterations in attitudes and thinking begin to blend with small steps toward significant action. As addicted individuals translate the work of decision making into commitment to change, they look a little like individuals in Contemplation as well as like those in Action stages. Engagement in the cognitive/experiential processes of change peak and begin to become less important during the Preparation stage in a recovery or cessation change process. On the other hand, the behavioral processes of change, particularly self-liberation, increase dramatically. Self-liberation is the process of change that engages choice and commitment. It is central to successfully strengthening the commitment needed to follow through with developing the plan. Preparation also is characterized by initial use of other behavioral processes like counterconditioning and stimulus control. Planning is often accompanied by self-observation and monitoring that allow the individual to begin avoiding places and people associated with the addictive behavior and foster attempts to employ alternative coping strategies to deal with urges to take drugs, drink, or gamble. In Preparation, there are often small steps that are being taken or have been taken to modify the behavior, like a call for help, restructuring the environment, an attempt at self-regulation of the addictive behavior, or a recent attempt to quit. In addition, alternate reinforcing activities, such as getting involved with family, work, or school activities, can be increased so they will be available as viable substitutes for the addiction. Although they may seem anxious and hesitant, addicted individuals in the Preparation stage look ready to try to change.

As they begin to plan a strategy for conquering the addiction, people in Preparation must evaluate how they will deal with other issues in the context of change. Multiple addictions and/or serious problems in the various areas of functioning make planning more difficult and require choices as to what to include in the change plan. Employment, family, social networks, psychopathology, psychiatric symptoms, marital relationships, sexual identity confusion, and characterological problems raise potential barriers. The possibility of assistance from others in the environment should be considered in the planning. The suggested strategy of AA to put aside all other problems and focus only on the alcohol or drug addiction until 1 year of sobriety is achieved is one way to develop a plan (Alcoholics Anonymous, 1952). However, it is not the only way, and multiple problems may need to be addressed to create an effective and acceptable plan.

Markers of change also reflect the transition from Contemplation to

Action. The decisional balance increasingly tips toward change as commitment is strengthened. Consideration of the negative aspects of the addiction and the pros for change must be sustained for the planning to continue. However, self-efficacy begins to play an ever-increasing role. As individuals begin to put together a plan that they believe will work, their confidence to deal with the temptations to drink, gamble, take drugs, or smoke increases, though at times slowly or only after some initial success. Initial steps to manage the addiction, if successful, support personal efficacy and offer hope for success.

Commitment to Change

The first task of Preparation is creating the commitment for the upcoming attempt to change. Commitment is related to decision making. However, it is not an automatic consequence of the decision-making process. Although there are many reasons why I am convinced that I “should” do something, summoning the energy, resources, and dedication needed for taking action requires another step. An additional step seems necessary even if the “should” motivating change is an internal one supported by solid decisional considerations. Commitment is a critical element of this transition.

In our research, we have measured a process of change called self-liberation that attempts to capture the choice and commitment elements of change emphasized in humanistic and existential models (Prochaska & DiClemente, 1984, 1992; Prochaska & Norcross, 2013). Commitment represents the individual’s readiness to place a specified change at the top of his or her personal agenda, to allocate personal time, energy, and resources to do the work needed to make the change. A miscalculation of the energy and effort needed undermines many attempts to change smoking, alcohol, and drug dependence despite goodwill and solid decision making. Creating commitment and engaging self-liberation, then, is a central task of Preparation.

Commitment is also an important part of the phenomenon of self-change or “spontaneous remission,” as self-change was called in the 1980s (Tuchfield, 1981). On closer inspection, this type change was not so spontaneous (Sobell, Ellingstad, & Sobell, 2000). Rather, these self-changers reported engaging in many activities that parallel the tasks of the stages of change to move away from the substance and begin living without it (DiClemente, 2006; Toneatto, Sobell, Sobell, & Rubel, 1999). Supporting and encouraging that self-change process has been an integral part of minimal interventions and other efforts to promote self-change (Klingemann, Sobell, & Sobell, 2010; Prochaska, Norcross, et al., 1994). Often what appears to be more spontaneous self-change

can involve, for example, smokers reaching the tipping point that triggers the successful decision making and commitment to take the necessary actions as described in Chapter 8. However, all my personal attempts at spur-of-the-moment quitting smoking ended in unsuccessful efforts and unsustainable cessation.

Planning for Action

Planning is the other critical dimension of Preparation. For a plan to produce significant change of an addiction it must be *acceptable, accessible, and effective*. Each of these qualities is essential. There are effective and acceptable plans that are not accessible, and accessible and effective ones that are not acceptable. All three qualities are needed to engage the individual in action to break the hold of the addictive behavior. In developing their change plan, addicted individuals must decide how to handle the multiple and complicating problems in their lives, whether the plan is to include the help of others, formal treatment, and/or mutual help. An effective plan has concrete, immediate steps for taking action.

Although individuals cannot completely prepare for what will happen in any change, planning can make the change go more smoothly, be less stressful, and ultimately be more successful. We understand this when it comes to making changes like moving to a new home, taking a new job, or starting a new school. Few people would make these changes without finding out something about the new location, job, or school and organizing themselves for the change. Planning is an important step in taking an action to produce significant and sustained change.

When it comes to addictive behaviors, individuals often refer to that elusive characteristic called “willpower” as the only thing needed for change. However, the definition is often circular and unhelpful: successful changers have it and unsuccessful ones do not. Indeed, willpower and success are often linked together in the American ethos. Yet many very successful talk-show hosts, athletes, actors, comedians, and businesspersons have become addicted, suffered significant losses, and found change extremely difficult, if not impossible (Fletcher, 2001; Wholey, 1984). Certainly, these individuals had the willpower, dedication, and commitment to become successful. It is hard to believe they completely lost these characteristics when it came to the addictive behavior, especially because when they finally move into recovery, many do things that take strong willpower. Changing addictive behaviors takes more than generic willpower; it takes commitment and planning specific to the individual and the behavior.

Is planning necessary? Several studies have asked smokers who have quit whether they had a planned or unplanned quit attempt and

have found that, retrospectively, a number of smokers said that their quit was unplanned and successful so far (Ferguson, Shiffman, Gitchell, Sembower, & West, 2009; West & Sohal, 2006). Thus it is certainly possible not to have an extensive quit plan and still be successful. It depends on what elements of the stage tasks have been problematic in prior attempts at change. If one has quit many times before, he or she may already know what to do. This time he or she may simply need the motive or motivating experience to trigger a firm decision and fuel the strong commitment needed to make a successful quit. Thus it seems reasonable that some measure of commitment and way of going about making the change is needed. How often that is a lengthy, explicitly considered planning process can be debated. However, an implementation intention, adequate commitment and prioritizing, as well as using some method or strategy (e.g., cold turkey, NRT, medications, cutting down) have been part of most individuals' process of quitting smoking and other drugs (Amrhein, Miller, Yahne, Palmer, & Fulcher, 2003; Klingemann & Sobell, 2007; McEachan et al., 2016; Miller & Rose, 2009).

WHAT NEEDS TO BE INCLUDED IN THE PLAN

The plan to change an addictive behavior needs to be built around people's knowledge about themselves and about their pattern of behavior. If drug use occurs on weekends with a certain set of friends, a plan to quit drugs while still socializing with these same friends would be difficult to implement. Planning should also consider the strengths and weaknesses of the individual. Individuals who lack assertiveness skills will have a difficult time in environments where there is lots of encouragement to engage in the behavior. Individuals who use the behavior to cope with feelings of frustration and anger will need to learn ways to avoid or manage these feelings. Individuals who plan to quit amid other life stresses may need some special help or support. Individuals who have a spouse or partner who engages in the addictive behavior will need to find some way to neutralize this influence. The specifics of the plan may differ, but the existence of a formal or informal plan appears critical for moving successfully into Action.

Planning also requires some concrete details, like setting a date or taking specific steps. In studies of smokers, one important indicator of an individual's readiness to actually make an attempt to quit smoking was whether he or she had set a date for cessation (Fiore, Jorenby, & Baker, 1997). Setting a date seems to indicate that the individual has thought about the change and is developing a concrete plan of action. Usually this involves what have been called "implementation intentions"

in the theory of planned behavior and reasoned action—what the individual specifically intends to do (Ajzen, 1991; Fishbein & Ajzen, 2010). These intentions are another marker of Preparation stage activity. Whatever specific indicators of readiness are used, a plan should be based on the addicted individual's prior treatment and change experience, as well as intimate knowledge of the environment and resources supporting or blocking the attempt to change.

In the motivational enhancement therapy developed for Project MATCH, we included a blueprint for a change plan that could be used by the therapist (Miller et al., 1992). This blueprint simply gives the categories and issues to consider when helping the client create a plan for change (Figure 9.1). These include the specific change desired, the means

1. The changes I want to make are:	
2. The most important reasons why I want to make these changes are:	
3. The steps I plan to take in changing are:	
4. The ways other people can help me are:	
<u>Person</u>	<u>Possible ways to help</u>
5. I will know if my plan is working if:	
6. Some things that could interfere with my plan:	

FIGURE 9.1. Change plan worksheet.

to be used, others who are available and how they can help, what success would look like, and the problems that could pose barriers. All these elements form the necessary ingredients for a change plan.

Another important element in getting prepared is an assessment of the status of self-control strength and self-regulation capabilities. As discussed in earlier chapters, loss of control is one key indicator of a serious substance use disorder, and self-regulation is impaired to some degree in all individuals who have this diagnosis. This may be compounded by significant current loss of self-control strength (Vohs & Baumeister, 2016; Muraven & Baumeister, 2000) or impairment in affect regulation and executive cognitive functioning that preexists the use disorder, as these issues will disrupt planning and commitment. In fact, for individuals with compromised regulation systems, planning must address how to manage impaired self-regulation. I have begun to use the term “scaffolding” as a metaphor to understand management of impaired self-regulation (Reid, 1998; Stone, 1998). The greater the self-regulation impairment, the greater is the need for personal and environmental scaffolding. Self-regulation is needed for most of the action activities and tasks (monitor cues, cope with cravings, delay, distract, shift attention, accept, become mindful). Scaffolding to support these activities is needed to support the structure during construction, whether this consists of supportive environments, personal aids, medications, interpersonal guidance, housing, or other types of support. Just being told to go and do it when self-control is seriously impaired ignores the critical role of self-regulation in taking action to break an addiction.

Alone or with Others?: Including Others in the Plan

Having someone who can empathize, as well as provide encouragement and support for planning and acting, is important for many people in recovery. Sponsors have been an integral part of assisting individuals in making a commitment to the 12-step approaches (Nowinski, 1999; Nowinski, Baker, & Carroll, 1992) and in developing the plan for sobriety based on the practices of AA. Many addicted individuals have benefited from the wisdom, commitment, and assistance of these sponsors. In my experience, sponsors are more available and integrated into the lives of the addicted individual than treatment personnel ever could be. Similarly, for drug abusers, therapeutic communities and group approaches to treatment may make a great deal of sense (see S. Brown & Yalom, 1995; DeLeon, 1999). They provide intensive scaffolding for many of the most compromised and challenged individuals. However, intensive support has not always been needed for individuals to achieve successful

modification of addictive behaviors. Many smoking cessation and substance abuse treatment programs report that even successful quitters do not complete all the sessions of the program, stay in close touch with sponsors, or involve others in their plan of action (DiClemente & Scott, 1997; Klingemann & Sobell, 2007; Sobell, Cunningham, Sobell, & Toneatto, 1993). Often it has been difficult to create smoking support groups like those in AA (*nicotine-anonymous.org*). Including a support group or a mentor in a change plan should be seriously considered but may not always be necessary.

The question of including others can be answered by determining what type of assistance is needed for this individual to implement a viable plan for action. If the addicted individual reports a significant amount of perceived support for change, then support groups or more intensive treatment programs may not be as necessary. On the other hand, if the environment is either devoid of support for change or filled with individuals who have similar addictive behavior problems, the change plan may need to include finding others to provide helping relationships to support the change (Longabaugh et al., 1995; Longabaugh, Wirtz, Zweben, & Stout, 2001). Similarly, if there is significant impairment in self-regulation and self-control, there may be a greater need for support systems and scaffolding.

Another way to evaluate the need for others and particularly for support groups is to understand the individual's patterns of use and triggers for use and then to decide which of two behavioral processes is most important: stimulus control or counterconditioning. Understanding the difference between these processes can guide the decision. A brief review of these processes follows.

Stimulus control entails avoiding or removing triggers for the addictive behavior, or changing the environment in a way that helps to avoid the behavior. Examples of the stimulus control process include avoiding bars and drinking buddies, attending events where alcohol is not served, and going to self-help meetings to avoid triggers to drink. For smokers, getting up from the table immediately after eating can be a stimulus control strategy. Banning oneself from casinos is another. Spending time with others in recovery or who do not engage in the addictive behavior also represents stimulus control.

Counterconditioning, on the other hand, involves changing the individual's response to the stimulus rather than the stimulus itself. Often addicted individuals cannot avoid triggers and must learn to cope with them. They must learn to be in situations where alcohol is being served without drinking, how to pass by an old neighborhood where they bought drugs without turning in for a hit, or how to be among smokers without smoking. Desensitization, relaxation training,

distraction, and constructive self-talk are all strategies representing the counterconditioning process of change. Acceptance strategies and mindfulness training are other counterconditioning strategies that are being used for both supporting action and preventing relapse (Hayes & Levin, 2012; Witkiewitz et al., 2014). These activities may help the addicted individual to survive the craving or desire for the substance until that response is extinguished.

The more an individual needs to use stimulus control instead of counterconditioning to overcome the addictive behavior, the more need there may be for a support group in the change plan. For example, alcohol-dependent individuals who have a great deal of support for drinking in their environment may need to use more stimulus control strategies. This means avoiding most social situations and current friends in order to achieve sobriety. Since they have few nondrinking alternative environments available, they need an alternative social support system to avoid cues to drink. This individual could benefit from AA attendance and the extensive, 24/7 support network they provide (Longabaugh et al., 2001) or a SMART Recovery group (www.smartrecovery.org). On the other hand, a gambler who has few friends who gamble and many other opportunities for amusement as well as a supportive environment would not necessarily need support groups in her or his change plan. The wisdom and knowledge of the individual who is changing the addictive behavior, who understands best the pattern of the addictive behavior and the history of previous change attempts, should be used to develop the plan collaboratively with any provider.

The change plan should be one the individual will endorse and embrace for it to be implemented. Making hard and fast rules about how any addicted individual must change is as problematic as not making a plan at all. A single man announced in one aftercare group that he decided to quit cocaine and alcohol. However, he was reluctant to give up his attendance at the bars where he would do most of his socializing, so his plan was to order nonalcoholic drinks but keep frequenting those bars. His first weekend visit to the bar was a success. He felt he had a good time without drinking. By contrast, the second weekend it was much more difficult to sit and watch others drink without taking part. So he slipped and did have a drink, but came back to the group to discuss the problem. Some readers will immediately condemn his plan as being unrealistic from the start. Nonetheless, it was his plan. It was acceptable to him and he was committed to implementing it. If I had forced him to develop another plan, it is doubtful that he would have been as committed or as open in discussing the pros and cons of his plan and its risks. Revising the plan enabled him to continue taking action to

quit drinking. The path is not the same for everyone. Some addicts who drop out of treatment successfully quit their addiction. These individuals do not follow the treatment plan provided by the counselor but do follow their own change plan. Drop out from treatment and failure to stop the addiction are not synonymous (DiClemente & Scott, 1997). Treatment program rigidity and failure to personalize treatment plans to serve the client's change plan often fail to engage individuals ready for change and contribute to drop out. This distinction between a treatment plan and a change plan is discussed in more detail below.

Preparation Tasks and the Context of Change

One of the significant challenges for developing a change plan is to examine how other problems in the life context are related to the addictive behavior. When one addictive behavior is the only serious problem in an individual's life, planning for change can proceed in a fairly straightforward manner. Time and energy must be taken from normal activities and focused on doing the activities needed to change the target behavior, be it gambling, cocaine use, or smoking. The plan can incorporate helpful aspects from other areas of life and include close family and friends as a support system for the change. In outcome studies of addictive behavior interventions, individuals who have more education, more personal and financial resources, and fewer complicating problems are more successful in making changes (McLellan et al., 1986; Valliant, 1985, 1995). Change is still difficult for this group, but with the context of change filled with more resources they may be better able to plan and have more support for their efforts. It is not by chance that the subgroups most successful in quitting smoking are those with higher levels of education, income, and alternative sources of reinforcement (U.S. Department of Health and Human Services, 2014).

Many addicted individuals, however, have two or more addictions and multiple problems in other areas of functioning, and live in resource-impooverished environments. There may be no jobs of any substance, few alternatives for dealing with life problems, and meager resources in their current home or community environments. Without ways to resolve these complicating problems, there seems little hope of moving these addicted individuals toward change and creating a viable plan that would ensure long-term success (Smith, Subich, & Kolodner, 1995). Again, more scaffolding and more intensive and extensive programs that address the multiple needs of the "dually diagnosed" and multi-problem individuals is critical for sustained recovery (Drake, Mueser, Brunette, & McHugo, 2004; Woods & Armstrong, 2012).

Staging Multiple Behaviors

Planning for these other problem areas should include consideration of where in the stages of change the individual is for the different target problems. Most individuals are in different stages of change regarding the different problems in their lives. Some tobacco smokers are in Pre-contemplation about changing their marijuana use or doing something about a problematic relationship with parents. One person from my first research study stated proudly that quitting smoking had not increased his marijuana smoking, as he had feared. Clearly, he saw smoking cigarettes and smoking marijuana as very different problems, and he was prepared to take action on one and not the other. Similarly, alcoholics who change their drinking behavior significantly often continue to use marijuana, and methadone-maintained clients often abuse other nonopioid drugs (Belding, Iguchi, & Lamb, 1996).

On the other hand, sometimes individuals choose to change multiple behaviors at once. For instance, several successful changers with both nicotine and cocaine addictions have told me that they could not stop using drugs until their change plan included beginning to get some physical exercise on a regular basis. Exercise helped to fill the void created by quitting the drug use and gave them a sense of health and well-being that replaced the high of the drugs. These individuals had to take action for smoking cessation and exercise initiation simultaneously. In many cases, individuals who are changing an addictive behavior must either begin new behaviors that protect the change or modify old behaviors that are now incongruent or incompatible with abstinence from the addictive behavior. There is mounting evidence that addressing nicotine addiction during the treatment of individuals with alcohol problems or serious psychiatric disorders is not harmful and can improve outcomes (Prochaska et al., 2004; Williams & Ziedonis, 2004).

Anyone attempting to change even a single addictive behavior will need to be willing to change multiple aspects of life and environment. These “by-product changes” that occur in the context of changing a single problem behavior differ significantly from a planned, intentional change focused on a separate second and third problem behavior. By-product changes seem paired with and carried along by the motivation and maintenance tasks of sustaining the targeted behavior change rather than having a separate focus. Sometimes, though, other behaviors that need to be changed require a separate intentional focus and a planned strategy for change. This would require a similar type of decision making and movement through the stages of change for each target behavior. At least that is the assumption of the change model proposed here.

Individuals with multiple problems, particularly those with few resources, pose a significant challenge in planning for change even if they are convinced that they should give up the addictive behavior. Although multiple problems and problematic resources create a significant barrier to changing addictive behaviors, any realistic personal change plan as well as any credible intervention strategy must not ignore the complications that interfere with decision making and the tasks of Preparation. Incorporating multiple problems into the plan, whether or not they are addressed to any significant degree, seems most realistic. The question most often is not whether someone changing a single addictive behavior should make multiple changes in his or her life but how many and what kinds of behaviors or problems need to be changed and in what sequence to develop a successful change plan for the individual.

Some of my research has focused on women who continue to smoke during pregnancy. Many of these women have few resources and multiple problems beyond smoking cigarettes. Often there are conflicts with the baby's father or other partner, difficulties with parents and family, few financial resources, unstable living environments, illegal drug use, a history of sexual or emotional abuse, and possibly concurrent psychological distress or a psychiatric disorder. The challenge is how to move these women toward making a credible change plan for smoking that does not ignore the other very real problems in their lives. It is certainly not realistic to ignore the other problems and tell them to focus only on the nicotine addiction. However, it is equally ill-advised to ignore the smoking while offering help with other problems because smoking represents the single most modifiable risk factor for premature birth and other pregnancy and postpartum problems for the baby (DiClemente, Dolan-Mullen, et al., 2000; U.S. Department of Health and Human Services, 2014). My advice for initial interviews with such women is first to identify and address the problems of primary interest to the women and then to incorporate a focus on health behaviors related to the pregnancy, including smoking. Smoking may be the area where these women have the most control and where they could accomplish something that would protect their baby and make them feel better about themselves while becoming more empowered to handle other problems in their lives.

Incorporating multiple problem areas or behaviors into an individual's change plan, however, can be a two-edged sword. On the positive side, there can be a synergy to making multiple changes at the same time, particularly if they have some common elements, as is true with addictive behaviors. A conversion type of change similar to a religious conversion, for example, encompasses many areas of an individual's life and

can offer support for changing multiple behaviors and turning one's life around (Miller & C'deBaca, 2001). However, such large-scale change creates negatives such as greater stress and dislocation, which can be very disorienting. Stress and disorientation can be a significant relapse precipitant for the changer. In addition, sometimes what is built as a complete change involving many different behaviors can collapse like a house of cards when relapse or problems occur in one area.

These negative aspects of a more all-encompassing change plan are probably the reasons why the 12-step tradition discourages AA members from working on other problems in their lives during the initial phase of gaining sobriety. The thinking behind this approach is that divided attention and effort can compromise the essential focus needed for achieving sobriety one day at a time. There is certainly wisdom to this strategy. Trying to fix marital problems, to solve family relation problems, or to begin a new career demands serious concentration and effort and can cause significant stress.

However, a "one-size-fits-all" change plan that focuses exclusively on a single addictive behavior or even on a constellation of drug- and alcohol-related behaviors is not always the best strategy either. One client, who had dropped out of school due to drug involvement, was discouraged by AA peers from going back to school and learning a new set of technical skills because she was too early in recovery from her polydrug dependence. Their concerns had merit, and it is true that the stress of taking courses was significant and created additional problems. Nonetheless, for this individual handling these issues became an important diversion from drugs and created an alternative area of focus and functioning that was incompatible with using drugs (counterconditioning) that was helpful in maintaining her sobriety.

Personal Change Plans and Treatment Programs and Plans

For most addictive behaviors there are a variety of treatment programs of differing intensity and orientation available (McCrary & Epstein, 2013; Connors et al., 2013; Walters & Rotgers, 2012). Should the addicted individual choose a specific program or an approach for recovery? Which one will work? How are individuals to choose from this bewildering array? Should they do it on their own or seek professional, formal assistance? Interestingly, the data from multiple studies and comparisons of different approaches indicate that many programs have equivalent outcomes (Project MATCH Research Group, 1997a, 1998a). I believe it is the personal change plan, rather than the treatment plan or program, that is the critical dimension for changing any addictive behavior. Each

problem, whether cocaine or nicotine dependence, gambling or eating disorders, has unique features that must be addressed. However, the most critical elements for developing any change plan are that it be realistic and that the individual be committed both to following through on that plan and to revising it as needed. The more the plan engages appropriate behavioral processes of change that shift critical markers of change and is comprehensive and pragmatic in addressing the context of change, the better and more effective it should be. What that looks like will vary widely, and I have seen some strange change plans that worked for certain individuals. In any case, personal plans and treatment plans should focus on the process of change and use a similar series of steps to address the addictive behavior and the life context (Table 9.1).

Treatment plans differ from personal change plans. Treatment plans are what the providers will do. Change plans are what the individual will do to successfully change the addictive behavior. Treatment plans should be in the service of the personal change plan and not the other way around. Treatment does not represent a separate change process; it essentially is a moderator of personal self-change. The recovery change process begins before treatment and lasts long after treatment. What is most important is not the specific treatment program or plan but how that program empowers the individual to engage in appropriate processes of change to adequately complete the tasks of the stages of recovery. Treatment providers are facilitators who step into the moving stream of the natural change process (DiClemente, 2006). They are not the prime movers of that process.

The effectiveness of the change plan can only be judged in the Action stage, when the plan is implemented. That is the reason why the

TABLE 9.1. Planning for Change Using the Change Dimensions of the TTM

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1. Identify stage of change for target problem.
 2. Identify processes of change needed to address tasks of that stage.
 3. Identify problems in the context of change and how they interact with change of the target problem.
 4. Evaluate stage of change for context problems and when they can be most appropriately addressed.
 5. Evaluate self-regulation and self-control status and skills needed to implement the plan.
 6. Develop a plan to address target and other problems that includes:
 - Strategies to promote key processes.
 - Focus on the critical markers of change.
 - When and how to address other problems.
 - How to scaffold the self-regulation challenges.
-

plan has to be one that can be changed if it is not working. The plan is not the end point of the process of change. Taking action to make the change is the real bottom line for moving out of the Preparation stage and into Action.

CASE EXAMPLES AND OVERVIEW

Preparation stage tasks empower the addicted individual to implement the decision to change in a manner that offers hope for success. Commitment and specific strategies to be used in taking action are the focus (Table 9.2). There is a shift from cognitive/experiential processes to behavioral processes of change, and the markers of change shift in emphasis from decisional balance to self-efficacy and temptation. Contextual problems begin to play an important role, as they can significantly influence the potential for change and complicate a change plan. Case examples can only begin to approximate the complexity.

Paula Prepared, a 33-year-old homemaker, decided that this time she was really going to quit smoking. She had made several prior attempts to quit, including stopping during her two pregnancies and resuming as soon as she finished breastfeeding. Once when she was 22, she quit for 6 months but returned when she started seeing the man she eventually married, who also was a smoker. When she turned 30, she tried again but lasted only 1 month. Recently she found out that a teacher she admired had lung cancer. Health concerns and her nagging awareness that her children were now getting to an age when they may begin smoking convinced her that she must quit for good.

Paula talked to her physician about quitting and whether a cessation medication, such as Zyban or Chantix, could help her. After discussing the pros and cons, she decided to use a combination of nicotine patches and lozenges as an aid to reduce her smoking from the pack and a half a day that she currently smoked. The patch and lozenge would help her deal with nicotine withdrawal so she could handle early-morning cravings and other cues throughout the day. She would lower the dose of the patch and decrease lozenges gradually over 6–8 weeks as suggested by her doctor until she would just quit altogether. She set the date for quitting and purchased the nicotine replacements at the pharmacy.

Paula also considered contextual factors in her quit attempt. She knew her husband's smoking would be a problem for her, so she talked with him and told him how important this was for her. At first, he tried to talk her out of quitting right now but then agreed to smoke outside the house and to try not to smoke when she was around. Paula also

TABLE 9.2. Preparation for Recovery: An Overview of the Dimensions of ChangeStage task

Creating and strengthening commitment needed to support action and developing an accessible, acceptable, and effective plan for change.

Change processes at work

Cognitive/experiential processes peak and begin to become less important. Behavioral processes of change, particularly self-liberation and initial use of stimulus control and counterconditioning, become important in creating the commitment and plan.

Reinforcement: Small steps toward change are successful and reinforce the commitment; alternative reinforcements begin to be viewed as valuable.

Counterconditioning: People and places that trigger the behavior are identified, as well as alternative coping strategies to cope with the urges.

Stimulus control: Self-observations and monitoring uncover and begin to avoid the presence of triggers in the person's life.

Self-liberation: The person chooses what elements and strategies to include in the plan and commits to implementing the plan.

Helping relationships: The person seeks out others who can encourage and support changing the addictive behavior.

Markers of change

Decisional balance: Continues to be weighted strongly toward change, supporting both the decision to change and the commitment.

Self-efficacy: Confidence in the various elements of the plan as well as in the ability to change the addiction increases.

Context of change

Multiple addictions and problems in the life context complicate the change plan; sequencing when and how to deal with contextual problems offers significant challenges; understanding the stage of change for additional problems can offer some direction. Building self-control strength and self-regulation capacity to be able to implement the plan, engage processes, and complete tasks adequately.

knew that the childrens' hectic schedules produced stress and would make quitting more difficult, so she timed the quit date to be after they finished the school year.

Paula was well prepared and had a plan that seemed reasonable and effective. There were a few wild cards in the mix. Paula's father had recently been diagnosed with a serious heart condition and was undergoing treatment. If he became seriously ill, she would have to travel from Baltimore to Philadelphia, where he lived, to help her mother. She was an only child. This stressor could significantly affect her plan since smoking had been a coping aid.

Fred Furious presented another picture of preparing to quit smoking altogether. The recent increase in the cigarette tax made him very angry and upset. He was convinced that he needed to quit just so he would not give his money to a state government that was punishing him for smoking. He also thought that turning 50 and growing concerns about health were good reasons to finally quit smoking. There would be other benefits. His wife and kids would finally stop nagging him about his smoking, and he would no longer have to go into that obnoxious, smoke-filled enclosure reserved for smokers at O'Hare Airport when he traveled.

Fred spent a couple of days mulling over his decision and planned to quit smoking this weekend. He had tried nicotine gum before and just went back to smoking, so this time he would quit cold turkey. The weekend would give him some time to get over the first days without cigarettes. He would smoke his last cigarette on Friday and then destroy the rest. This time he would make it stick and not relapse like before.

Fred's plan seemed solid but did not consider that he was scheduled to play golf with his business associates who were smokers on Sunday and that he was going out for dinner on Saturday evening with a couple who smoked. This was also a high-stress time at work, and he had several important presentations in the next couple of weeks. He would certainly face significant challenges to his quitting smoking early in his attempt to quit.

Paula and Fred offer contrasting plans and different levels of detail and preparation. Although each of them could falter and stumble as they implemented their plan, Paula appears to be anticipating potential threats to action better and to have a more detailed contingency plan. Both seem committed to quitting. Fred's anger can be a potent force if it can be sustained and directed at supporting the change. Contextual problems with parental illness and business stressors make the prediction of successful action more difficult because planning seldom covers all contingencies in the life context and stress is a major contributor to addiction and relapse.

SUMMARY

Although planning may be difficult for addicted individuals, many of whom can be impulsive, commitment to a plan of action is essential in order to implement successfully the decision of the Contemplation stage. The plan should be a personal one that is chosen by the individual and can be a simple self-change program supported by strong commitment or include mutual help resources as well as formal treatment programs.

One critically important issue that must be addressed is how to manage other life problems while implementing the change plan for the target addictive behavior. Multiple problems in other areas of functioning complicate planning and steal resources needed to follow through on the action plan. Once the plan is in place and the commitment to take action secured, the individual can move forward into the Action stage of change.

CHAPTER 10



Taking Action to Change an Addiction

Leaving an addiction is one of the hardest things
I have ever done.

BEGINNING BEHAVIOR CHANGE

The Action stage of change requires a concentration of energy and attention to interrupt the habitual pattern of an addictive behavior disorder. During Action, addicted individuals begin to break the physiological, psychological, and social ties that bind them to the addictive behavior. They separate themselves from the old pattern and begin to create a new one. This stage requires commitment and active use of the behavioral processes of change. The work of Contemplation and Preparation lays the foundation for this active behavior change by providing the decision, specifics of the plan, and the commitment to act on it.

There is a significant discontinuity between the tasks of the first three stages, which focused on changing cognitions, attitudes, and experiences, and those of the Action and Maintenance stages. Being ready to stop smoking is one thing; actually going through the physical withdrawal and psychological loss is quite another. There is a qualitative and quantitative difference in the activities and attitudes needed in Action from those needed before.

Defining Characteristics of Action

The four main tasks of Action are (1) breaking free of the addiction by utilizing behavioral change processes and the strategies of the plan, (2)

continuing commitment, (3) revising the plan in the face of difficulties, and (4) managing neurobiological readjustments, contextual barriers, cravings, temptations, and slips that can provoke relapse. The goal is to establish a new pattern of behavior. All the behavioral processes of change are needed to initiate and sustain the separation from the addiction. Commitment (self-liberation) must be sustained. Counterconditioning, stimulus control, and reinforcement management must be employed to break the bonds of the addiction sometimes with the assistance of medications. Helping relationships are particularly important for support during this attempt to live life without the addiction.

Self-efficacy is the most critical marker of change at this juncture in the process of change. Confidence in one's ability to stop the addiction, built during Preparation, is tested in the Action phase. Successful separation from the addiction increases efficacy to cope with a variety of situations without reengaging in the addiction. Successful coping with temptations to use reduces the level of temptation and increases self-confidence to abstain. However, if temptation remains high and coping is inadequate, then Action is jeopardized (Shaw & DiClemente, 2016).

Slips—brief episodes of use—are events that interfere with successful Action. Yet slips also create an opportunity to correct defects in the current Action plan. Many Action attempts do not end in successfully maintained change. A full relapse back into the addictive behavior pattern re-cycles the individual to earlier stages of change. The tasks of those earlier stages must be redone or accomplished more fully if the person is to move back into the Action stage. Re-cycling successfully through Action enables the addicted individual to move into Maintenance. This chapter describes the specifics of behavior change needed during this Action stage to continue along the road to recovery.

Breaking Free

The important task of the Action stage is to break away from the addictive behavior and to create new patterns of behavior. Action begins on the first day of the attempt to quit or modify the addictive behavior and continues through each day of the week and each week of the month until the physiological, emotional, and social ties to the addictive behavior are less binding and the task of breaking free requires less intense effort and focus. It usually takes 3–6 months to firmly establish a new pattern of behavior that becomes a way of living and coping with day-to-day life without the addictive behavior. Well-maintained addictions are integrated into the individual's lifestyle and coping repertoire; breaking free involves cutting the ties to the addiction across the broad range of life situations where the behavior has become important, useful, and needed.

Leaving an addiction has been likened to leaving an intense love relationship (Peele, 1985). Familiarity and conditioning combined with potent physiological and neurochemical effects make losing the addictive behavior particularly poignant and difficult. In the initial phase of Action, each of the connections between lifestyle activities and the behavior must be severed. For example, for addicted smokers cigarettes may be connected with eating a meal, talking on the phone, taking a break, getting up in the morning, and so on. As we saw in Chapter 3, each activity has set the stage and provided cues to smoke. These cues are classically conditioned, like the ringing of the bell to signal salivation for Pavlov's dogs, and serve as signals that powerful reinforcers are coming. Often it is the anticipation of the use that seems to make these cues attractive (Sayette & Creswell, 2016). It takes time and energy to sever these connections, and a certain nostalgia may remain that encourages the individual to renew the connection with the addiction.

Another reason for the length of the Action period is that it takes time to recover from the neurobiological and neurocognitive effects of the addiction on the brain. Once abstinence is initiated, addicted individual's brain needs to heal from the damage the addiction inflicted on processing and control mechanisms. For most substances, there is significant recovery in a variety of brain mechanisms and processes after weeks and months of abstinence (Garavan et al., 2013; Mandyam & Koob, 2012; Schulte et al., 2014). Studies are demonstrating functional and structural changes in the brains of individuals in recovery from severe alcohol use disorders (Durazzo et al., 2015; Van Eijk et al., 2013), cocaine and heroin addiction (Bell et al., 2011; Bell et al., 2014; Morie et al., 2014), and adolescent marijuana use (Hanson et al., 2010). Similar findings of partial recovery in some brain and affect regulation functions have been reported for methamphetamine users who achieve stable abstinence (Ludicello et al., 2010). Although some recovery was found following volatile substance misuse, recovery was limited by extent of use and of damage to cerebellar processes. In some cases, neuroanatomical damage may never be fully repaired (Dingwall & Cairney, 2011). However, brain changes are important and needed to support continued abstinence and recovery of self-regulation.

Abstinence and Slips on the Road to Recovery

Taking action requires significant modification of the addictive behavior. In most cases this will require abstaining from the behavior for at least some period. The role of abstaining from the behavior often has been misunderstood. Abstinence can serve as both a short-term *and* a long-term goal of recovery and plays an important and unique role

during Action. Once addictions have developed into well-maintained problematic patterns of behavior, they have eluded self-regulatory control and caused neurobiological consequences. Then the addictive behaviors are not able to be self-regulated easily and do not respond to consequences (see Chapter 3). Once individuals are addicted, reinstating self-regulation is a difficult and problematic undertaking. Smokers who have cut down on the number of cigarettes smoked often find themselves smoking more in order to maintain a level of nicotine in their system or because the behavior returns to normative levels of nicotine ingestion (Cheong, Yong, & Borland, 2007). Heroin users on methadone often miss the euphoria and return to problematic heroin use (Fareed et al., 2011). Dieting has been a very unsuccessful enterprise for many overweight individuals; most gain back the entire weight lost on the diet (Amigo & Fernandez, 2007; Brownell et al., 1986). Alcohol-dependent individuals often report that returning to social drinking is difficult because of their tendency to overdrink (DiClemente et al., 1995; Hasin & Grant, 2015; Vaillant, 1995).

The longitudinal data demonstrate, however, that while difficult, the return to self-regulation is not impossible (Dawson, Grant, Stinson, et al., 2005). My belief is that the best, if not the only, way to achieve a return to self-regulation is through a learning process that includes at minimum a sustained period of abstinence during the Action stage. In fact, self-regulation requires the ability *not* to engage in the behavior across all situations so that a sense of self-control is reestablished. As discussed above, brain healing and recovery also play an important role in regaining self-regulatory capacity and strength. Therefore, abstinence in the Action stage is an important goal whether the long-term goal is complete abstinence or significant modification of the addictive behavior (e.g., responsible gambling, some social drinking, use of prescription opiates when medically indicated).

Total abstinence during Action may be the goal, but it is not always the reality. Slips are brief reengagements in the addictive behavior that indicate that the commitment or plans are insufficient in some way. Slips represent an opportunity to evaluate the difficulty and the temptations that are encountered and to revise the plan accordingly. The emphasis on complete abstinence as the only acceptable outcome for addiction has obscured the fact that many individuals experience a slip during the Action stage, learn to remedy the defects in the plan, and go on to successful recovery. If slips are considered failure, individuals often abandon the entire change attempt instead of using a slip as an opportunity to revise the plan. Instead, it is more useful to view slips as part of the process of taking effective action and an opportunity to learn (DiClemente & Crisafulli, 2017). With that said, when slips become more frequent or

extensive, they may indicate that the person has given up on this change attempt and represent an abandonment of Action and substantive return to the addiction, as discussed later in this chapter.

The Right Road

There is disagreement about how to get through the first days and weeks of the Action stage. Some insist, particularly for the severely dependent, that it be done in an inpatient setting to protect the person from any physiological dangers and to shelter from those daily cues to return. There are numerous detoxification programs that require an inpatient stay, even for smoking cessation (Hays et al., 2011; Hurt et al., 1992). However, others believe simply monitoring the detoxification process with or without the use of cross-tolerant drugs in an outpatient setting works as well as the more expensive inpatient detoxification (Miller & Hester, 1986). With smoking cessation there is the controversy of whether to quit “cold turkey” versus “cutting down” on the number of cigarettes gradually. Many believe cold turkey is the only way to ensure success because reduction in numbers of cigarettes can undermine motivation to abstain (Cheong et al., 2007; Orleans & Slade, 1993). However, as we saw in the Preparation stage, many successful quitters begin to cut down on the numbers of cigarettes smoked as they get ready to quit (DiClemente et al., 1991). The reason “cold turkey” is recommended is that many individuals must avoid all cues in the early phase of stopping. Cutting down can be attractive to others who prefer to quit without disrupting their natural environment. However, reduction sometimes gives the illusive hope to be able to continue to smoke but now at safer levels. At some point, even those who reduce have to jump to abstinence since the fewer the numbers of cigarette smoked, the more valuable each one becomes in the mind of the smoker.

Is there a single, most effective way to get through this early stage of Action? Probably not. The list of Action strategies that have been used to break an addiction includes acupuncture, electrical shock and other aversive conditioning techniques, hypnosis, behavioral coping skills, 12-step approaches, anticraving medications and natural remedies, therapeutic communities, inpatient 28-day programs, single-session primary care interventions, community reinforcement approaches, fear-inducing motivational techniques, and sensory deprivation (McCrary & Epstein, 2013; Miller & Heather, 1998; Tucker, Donovan, & Marlatt, 1999; Walters & Rotgers, 2013; Witkiewitz, Bowen, Hau, & Douglas, 2013). All have been used as Action options by many individuals to achieve successful cessation or modification of addictive behaviors. This has led some investigators to claim that it does not matter what you do so long

as you do something to break the habit. This is clearly an overstatement, because there are many documented instances where some techniques have been demonstrated to be ineffective (Cochrane Reviews; Miller & Hester, 1986). However, we are only just beginning to understand how very different techniques and therapies can produce similar results for some of the population affected by addictive behaviors (Babor & Del Boca, 2002; Carbonari & DiClemente, 2000; Longabaugh & Wirtz, 2001; Orford et al., 2006; Project MATCH Research Group, 1997a). Despite the many different strategies there does appear to be, nevertheless, a common path through a set of change tasks and processes that are needed to negotiate the Action stage.

A COMMON PATH FOR ACTION

As individuals trying to quit an addictive behavior move from Preparation into Action, they need to decrease some experiential change processes and increase behavioral processes of change (DiClemente & Prochaska, 1985; Perz et al., 1996; Prochaska et al., 1991). Repeatedly our research has demonstrated a significant relationship between the behavioral processes of change and taking action to modify or quit an addictive behavior. Individuals in the Action stage usually endorse more behavioral process activity than do those who are in earlier stages of change (DiClemente et al., 1991; Fitzgerald & Prochaska, 1989; O'Connor, Carbonari, & DiClemente, 1996; Parrish et al., 2016; Stotts et al., 1996).

This should not be surprising, since addictions have a large behavioral component. As we saw in Chapter 3, addictions are appetitive behaviors (Orford, 1985). The behavioral processes of conditioning, stimulus generalization, and reinforcement help to lock in the routine pattern of activities labeled addictive in the process of initiation. To break the habit it is necessary to make use of the same behavioral processes of change. The structures that the processes now take are counterconditioning, stimulus control, reinforcement management, and helping relationships, in addition to self-liberation or commitment. They represent some of the most powerful principles of learning that psychologists and behavioral scientists have uncovered. Successful action requires counterconditioning activities that include finding alternatives to the addictive behavior, especially in high-risk situations. Stimulus control activities do some managing or avoiding of the cues or triggers for the behavior. Medications, for example, can be used to engage both counterconditioning (anti-craving actions) as well as stimulus control (serving to reduce cue salience). Reinforcement management activities involve creating a

more addiction-free environment, reinforcing and rewarding oneself, using medications that reduce the reinforcing effects of the addictive behavior, and having others help to reinforce the change. Self-liberation activities strengthen the commitment to action. Strategies for prompting, organizing, and instigating these activities differ greatly, as can the reasons given for their success. However, the research indicates over and over that successful change has these processes in common (Carbonari & DiClemente, 2000; DiClemente & Prochaska, 1998; Prochaska et al., 1992; Prochaska & Norcross, 2013; Velasquez et al., 2015).

What does this mean for the resolution of the controversies about the setting (inpatient vs. outpatient) and methods (cold turkey vs. cutting down; medication use) for taking action to change addictive behaviors? According to the TTM, the critical issue is whether the setting or methods of the treatment have been successful in engaging behavioral processes of change in the addicted individual. In addition, substantial commitment is needed to implement these behavioral activities. This need for commitment is probably why common wisdom attributes successful change to willpower. It is easy for a successful changer to say, "Well, I just did it with the force of my will [or character]." It is also easy to attribute success to this program or that technique after the change has been successful. In both cases, individuals seem to forget other previous quit attempts when they may have had equal amounts of commitment, a solid program, and effective techniques, but a flawed personal change plan that did not adequately engage necessary processes. As described in Chapter 9, change plan is more important than treatment plan. Settings, methods, techniques, and commitment are important but incomplete explanations for successful action. Individuals must be prepared to act and engage in the behavioral processes of change to change the environment, find other ways to cope, and actively avoid high-risk situations.

Treatment Adherence, Commitment, and Behavioral Processes in Action

The inadequacy of commitment to explain the entire process of successful change of addictive behaviors is also evident in the treatment literature on adherence. The correlation between adherence and successful change is solid but modest. All treatment programs require some commitment to attend or follow through with the program. There is usually a positive correlation between posttreatment success and adherence with procedures. Compliers with treatment do better than noncompliers in achieving successful change of addictive behaviors (DiClemente & Scott, 1997; Donovan & Rosengren, 1999; Mattson et al., 1998). Adherence is a measure of commitment and often serves as a marker for success.

However, adherence is not equivalent to success (Wickizer et al., 1994; Wierzbicki & Pekarik, 1993). Some clients come to therapy religiously but fail to take effective action. Many individuals in controlled trials participate in the treatment or take the medications, but do not successfully change. Commitment to attend or participate is not equivalent to commitment to implement the behavioral processes in one's environment. Possible reasons for this lack of concordance between participation and successful action are that individuals who do not adhere to treatment may not have made a solid decision, do not have the skills to implement the behavioral change processes, or have environments that overwhelm the implementation of the change processes.

Other clients drop out of treatment but successfully change their addictive behavior. In fact, I was surprised to see data from a number of studies showing that dropouts to treatment are not necessarily failures to change. Carl Scott and I described the relationship between adherence to treatment and readiness to change as orthogonal, representing two separate and not necessarily highly correlated dimensions (DiClemente & Scott, 1997). Addicted individuals can rate as high on both dimensions, low on both dimensions, or high on one and low on the other. Understanding the complexity of the relationship between compliance, commitment, and change can help make sense of the confusion between treatment effects and self-change efforts in the treatment of those with addictive behaviors (DiClemente, 1999b, 2006; Miller & Rose, 2009).

The key to successful Action is committed use of the proper processes of change to break the bonds of addiction. Getting addicted individuals to go to treatment is only a first step and, from a process of change perspective, probably represents less than half the battle to overcome addictive behaviors. Every clinician knows that presence on an inpatient unit or at an outpatient program is not a sure sign of motivation to change and that completion of the 28-day or 12-week program is not equivalent to successful action on discharge. In fact, despite good adherence, long-term abstinence rates at 6- and 12-month follow-up hover around 20 to 30% (Anton et al., 2006; Project MATCH Research Group, 1997a). Commitment to and adherence to and compliance with a treatment program or method are not equivalent to successful addictive behavior change.

A Process Profile for Successful Action

The addiction field needs indicators beyond commitment, willpower, and type of treatment to judge success during the Action stage. In our research, we have been continuing to examine a multicomponent set of constructs that constitute the TTM's view of Action (Carbonari &

DiClemente, 2000). Looking at the data from over 900 outpatients and 700 aftercare patients in Project MATCH, we examined predictors of drinking during the 1-year posttreatment period. We divided patients into those who were completely abstinent, those who had some drinking but did not engage in heavy drinking, and those who had returned to substantial, heavier drinking. When these groups were compared on TTM variables, including measures of stage and processes of change as well as evaluations of temptation to drink and efficacy to abstain from drinking, clear differences emerged. We then looked at the scores of these three groups separately for outpatient and aftercare patients (Figures 10.1 and 10.2). Those who were most successful in taking and sustaining action in the 12 months after treatment had significantly higher end-of-treatment scores on the Action subscale and lower scores on the struggling with Maintenance subscales of the University of Rhode Island Change Assessment (URICA), greater use of behavioral processes of change, lower temptation to drink, and higher self-efficacy to abstain than those who were the least successful. Interestingly, those who achieved a significant but more moderate level of success in changing

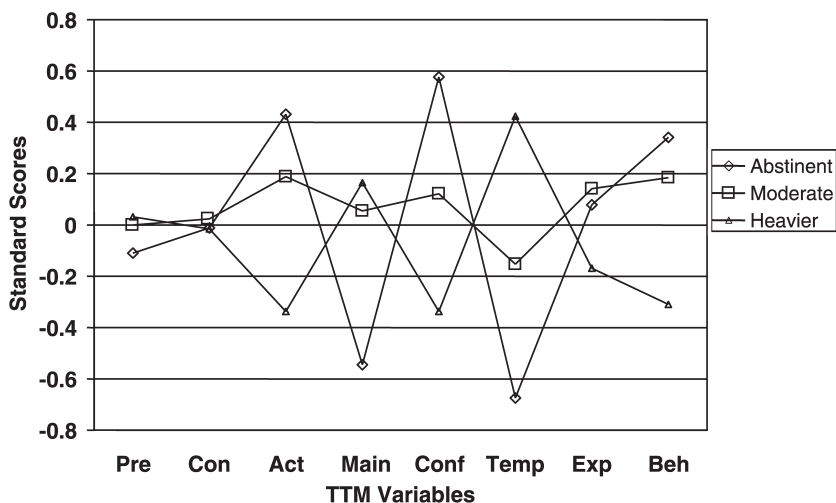


FIGURE 10.1. TTM profile of successful action for outpatients in Project MATCH. Pre, Precontemplation; Con, Contemplation; Act, Action; Main, Maintenance; Conf, Confidence; Temp, Temptation; Exp, Experiential processes of change; Beh, Behavioral processes of change. From Carbonari and DiClemente (2000). Copyright © 2000 American Psychological Association. Reprinted by permission.

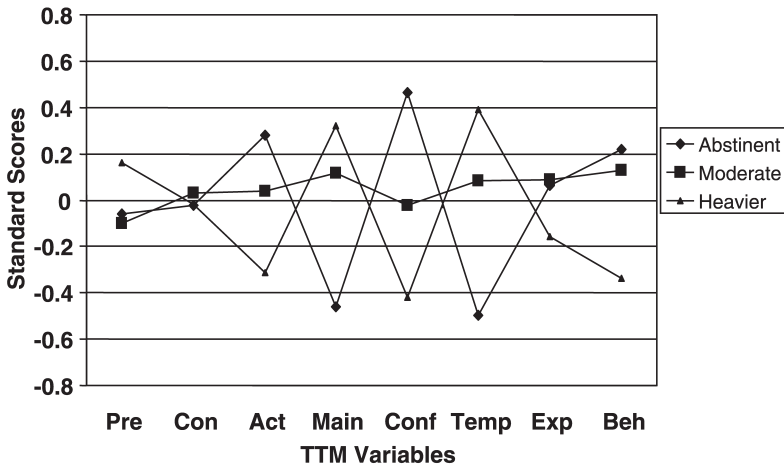


FIGURE 10.2. TTM profile of successful action for aftercare patients in Project MATCH. From Carbonari and DiClemente (2000). Copyright © 2000 American Psychological Association. Reprinted by permission.

their drinking in the year after treatment had scores on these variables that were between the most and least successful patients.

Although outpatient and aftercare patients differed in severity of problem and amount of treatment given prior to the Project MATCH treatments, the composite profiles at the end of outpatient or aftercare treatment on these variables were remarkably similar. Patients with more than three of these indicators in the desired direction above or below the mean of the entire group had significantly greater odds of being in the most successful group. Patients with fewer than three of the five success indicators in the desired direction had significantly greater odds of being in the heavier drinking outcome group. These findings offer the hope of providing a process-oriented measure of activities and attitudes that will be a sensitive indicator of successful action (Carbonari & DiClemente, 2000).

Several more recent attempts to replicate this profile have supported these findings. Analyses of data from the COMBINE study have found the same success indicators and profile at the end of treatment were associated with successful change in the posttreatment period. A small pilot study also found that a similar profile at baseline and 3 months into treatment distinguished between individuals with drug use histories (marijuana, cocaine, or heroin) who were abstinent at 6 months compared to those still using (unpublished RWJ Project Report, 2007).

Finally, the difference between temptation and self-efficacy was a strong predictor of success in Project MATCH (DiClemente, Carbonari, Daniels, et al., 2001) and predicted time to first use and severity of relapse (Shaw & DiClemente, 2016). Measures reflecting the process of change can be most helpful in predicting outcomes for those engaged in the Action stage of recovery.

STRATEGIES FOR INTERVENTION

Breaking the most immediate and visceral of the ties that bind the individual to the addictive behavior is the primary task at the beginning of Action. Solid commitment and a good plan can make this initial phase a bit easier. However, breaking the dependent pattern of behavior is an inherently difficult, uncomfortable, and stressful experience. Physiology and habit play a significant role. Breaking any habitual addictive behavior requires the individual to suffer disruption to the physiological and psychological systems that depend on the behavior. Smokers who experience the anxiety-provoking and, at times, disorienting withdrawal effects or find themselves with nothing to do with their hands must endure these effects while the nicotine is being flushed out of the system during the first few days. With some drugs like alcohol and heroin, the physical withdrawal effects can be painful and dangerous, including extreme physical disruption and pain (heroin withdrawal) or being significantly out of touch with reality (the delirium tremens [DTs] of alcohol withdrawal). With other behaviors like gambling and eating disorders, there may be less immediate physical involvement but a gnawing sense of loss that acts like a magnet drawing the person back to the addictive behavior. As many formerly addicted individuals have said, “Leaving the addiction was one of the hardest things that I have ever done in my life.”

Behavioral Processes of Change

Breaking the conditioning connection is as important as interrupting the physiological or biochemical connection. In fact, there are clear behavioral links to the pharmacological effects of substances of abuse. Conditioning represents the creation of a learned linkage between a cue and a response. As we discussed in prior chapters, cues play an important role in triggering addictive behaviors. Cues activate the brain as well as the mind (Koob et al., 2004; Wiers et al., 2007). Activity in the basal ganglia and the striatum as well as the amygdala areas of the brain support the shift from goal-directed to an incentive habit where the stimulus–response mechanisms gain control of the behavior (Garbusow et al., 2014). Cue

reactivity research demonstrates that cues elicit varying levels of physiological changes such as heart rate, craving, sweat gland activity, and skin temperature (Carter & Tiffany, 1990) and can skew attentional processes and implicit attitudes (Field & Cox, 2008; Wiers et al., 2006). Successful change requires the unlearning of these linkages between the cues and the addictive behaviors. One client reported that after achieving some abstinence from cocaine, he had to be particularly careful as he drove around the freeway at a specific exit. This was the exit for his drug purchases. Several times he noticed himself pulling over to exit as he drove around, and once he found himself off the freeway before he caught himself. The cocaine and freeway exit connection was a strong one. It often takes a long time to neutralize or extinguish these types of connections, especially since many are less than fully conscious.

Current dual-process models indicate that there are both automatic, impulsive processes as well as reflective, controlled processes that influence the experiences of temptation and craving that are implicated in relapse. More automatic processes create implicit cognitive biases that include an attentional bias (i.e., paying preferential attention to addiction-related cues), an approach bias (i.e., moving toward addiction-related cues), and a memory bias (i.e., positive memory associations with use experiences), all of which support use or engagement in the addictive behavior (Wiers et al., 2006; Wiers et al., 2013). These cognitive tendencies develop over time because of repeated engagement in the addictive behavior, and they influence both the loss of self-regulation and the lapse and relapse processes. The good news is that strategies to interfere with these implicit processes are being developed and tested, and they have shown promise in shifting attentional and approach biases (Schoenmakers et al., 2010; Wiers et al., 2006). Such strategies are essentially counterconditioning approaches that attempt to break the connections between the cues and the cognitive biases.

Breaking the connections between cues and behavior requires either changing the cue (stimulus control) or changing the response (counterconditioning), both of which involve taking concrete steps. Individuals who do neither are forced to rely completely on willpower to resist recurring urges and countercognitive biases. Paradoxically, urges often intensify when the individual concentrates so strongly on resistance to a present cue. Refusing to engage in the behavior helps break the conditioned connection with the cue, but it is not necessarily the most efficient way to do so. Just saying no does not always decrease the intensity of the cue or the strength of the craving. Several individuals preferred to quit smoking while carrying an unopened pack of cigarettes with them. They reported that the presence of the cigarettes reduced the feeling of being deprived of cigarettes, but it also kept the habit alive to some degree. In

almost all cases this strategy was used for only a short time. Then they disposed of the cigarettes—a more typical stimulus control strategy. It is important to remember that the addiction connections across the life space of the individuals were not created overnight and that breaking the connections will take time. We are learning that breaking the implicit cognitive biases requires multiple trials, just as creating the sensitivity to cues took multiple pairings (Field & Cox, 2008; Robinson & Berridge, 1993; Tiffany & Conklin, 2000).

Part of the power of addictive behaviors is that they have such strong, immediate, and consistent reinforcing effects compared to many of life's alternatives. It should not come as a surprise that changing these behaviors requires some intentional reinforcement or contingency management. These strategies can range from counting the money the smoker is saving every day that she does not smoke, to getting AA tokens or chips for various milestones on the path of recovery, to being able to breathe better or do more physical activity. Reinforcement is a powerful strategy in successfully changing addictive behaviors.

Reinforcers not only provide relief from negative states, but they also offer the direct rewards of positive new behaviors. Furthermore, reinforcement effects create a synergy with counterconditioning strategies. When individuals in the Action stage use alternative behaviors (deep breathing to relax instead of using marijuana) or engage in incompatible behaviors (physical activity instead of drug use), they often find these other behaviors have their own rewards and so are reinforcing in their own right. Individuals who have not found alternative activities that can provide some measure of relief, pleasure, or satisfaction are at significant risk for returning to the addictive behavior. Finding new sources of reinforcement is particularly important in the late Action and Maintenance stages of change. The shift from focusing solely on abstinence to recognizing well-being and overall healthy lifestyle as critical components of successful recovery reflects the need to find these alternative, reinforcing activities and meaningful goals (DiClemente et al., 2016).

The presence and support of significant others are important sources of reinforcement. The process that we call helping relationships identifies the contribution of having someone with whom the individual can talk and share the struggles involved in moving through the stages of recovery. It is in the Action stage, however, that these relationships can provide reinforcers for the change (Litt, Kadden, Tennen, & Kabela-Cormier, 2016). Several of my clients have reported that images or remembered words from our sessions encouraged them or supported them through a particularly difficult temptation to use. Clients who report greater satisfaction from intimate relationships while sober or

who have a personal cheering section that accentuates the positives of the change seem to have a better prognosis for successful change (Meyers & Smith, 1995). In fact, more than one client has expressed disappointment in the fact that the praise and rewards for sobriety did not last nearly as long as the nagging and complaining about the addictive behavior. It seems that those who live with addicted individuals are better at complaining about what they do not like than they are at reinforcing and praising positive changes their loved ones are making. However, there is peril in not praising. Change that is taken for granted by significant others can be more easily reversed.

Action and Environmental Reinforcement

Successful change requires the addicted individual to manage the interpersonal and social environment to achieve and sustain successful action. This is particularly important in the early period of the Action stage, when the attempt to change is new and the individual is most vulnerable to slipping back into the addictive behavior. Breaking the personal connections to the addictive behavior is more difficult if the individual continues to be surrounded by people and places that promote engagement in the addictive behavior (Longabaugh, 2011; Mericle, 2014). In fact, it is for just such a person that the need or rationale for inpatient or residential treatment is most compelling (Longabaugh, Wirtz, Zweben, & Stout, 1998). Residential programs have been promoted as a way of ensuring that the individual gets a priming dose of sobriety or behavior change and an escape from the stress and pressures of the normal environment (DeLeon, 1999). In Project MATCH, individuals who successfully completed an inpatient or residential program and then went into the Project MATCH aftercare did very well in terms of percentage of days abstinent during the posttreatment period and had outcomes that were better than the outpatient subjects (Project MATCH Research Group, 1997a). These better outcomes occurred even though the aftercare subjects had more serious initial alcohol problems and consequences related to their alcohol consumption than the outpatients.

One way to understand this result is that the individuals who entered a residential program had achieved a priming dose of abstinence that gave them an advantage, which was then reinforced by the aftercare Project MATCH treatments as these subjects returned to the natural environment. The period of abstinence afforded by the residential program, combined with support on discharge, was associated with significant changes in drinking throughout the year following aftercare treatment (Project MATCH Research Group, 1997a). It is not clear from this study what types of individuals need an inpatient or intensive outpatient

program to take successful action because participants were not randomly assigned to inpatient or outpatient treatment. Moreover, many individuals who entered the inpatient program had prior treatment for alcohol problems and 45% of the outpatients had had a prior inpatient treatment, so the effects of re-cycling were not considered. There are studies indicating that individuals with greater alcohol involvement do better in inpatient treatment and have better psychosocial outcomes (Rychtarik et al., 2000). However, whether matching individuals to residential treatment, intensive outpatient, or more intensive network support improves outcomes is not completely clear (Jungerman, Andreoni, & Laranjeira, 2007; McClellan, Grissom, et al., 1997; Saitz et al., 2013).

Another approach to assessing the need for a more intensive or residential program should involve consideration of the individual's self-regulation capacity and self-control strength (Baumeister & Vonash, 2015; Muraven & Baumeister, 2000). As discussed in Chapters 3 and 5, a critical dimension for evaluating severity of addiction is loss of control. Individuals trying to quit an addictive behavior with poor basic self-regulatory capacity or strength will have a very difficult time employing the behavioral processes of change and managing the significant separation from the addictive behavior needed in the Action stage. These individuals may need the "scaffolding" of a residential or intensive program and the possibility of a long-term residential or a chronic care management program to rebuild self-regulation and to regain the self-respect needed to face a world that will have significant cues and enticements for relapse. Such programs also give time for the brain to heal and the recovery of some neurocognitive mechanisms to be able to support self-regulation.

It is important to note that in the Project MATCH study, the reported use of behavioral processes of change at the end of treatment was predictive of successful drinking outcomes (Carbonari & DiClemente, 2000). In fact, participants' reported use of behavioral processes as early as the second week of treatment predicted higher percentage of abstinent days posttreatment (DiClemente, Carbonari, Zweben, et al., 2001). Notably, many of the participants discharged from the inpatient condition returned to the environments where they used to drink. Behavioral processes would be expected to assist them to modify the cues, responses, or reinforcers in the environment that promote abstinence. One way or another, individuals who plan to change addictive behaviors will need to address the role of the environment.

The environment represents both places and people; both are powerful influences on the addictive behavior. Action is most difficult when the addicted individual continues to be surrounded by others who are

engaging in addictive behaviors. For women who stop smoking during pregnancy, the best predictor of postpartum relapse is the presence of a smoking spouse (Mullen, Richardson, Quinn, & Ershoff, 1997). For pregnant women who fail to quit smoking during pregnancy, a smoking partner is an important correlate (DiClemente, Dolan-Mullen, et al., 2000; McBride et al., 1999). Family members who are also abusing alcohol or drugs represent an important predictor of relapse in almost all studies (Marlatt & Gordon, 1985; Merikangas, Rounsaville, & Prusoff, 1992). In short, it is difficult to overcome spending time with individuals who provide access and model the problematic behavior. Sustaining action in the face of these obstacles to change requires solid commitment and some basic self-regulatory capacity or strength. It also requires effective cognitive and behavioral coping skills to counter the influence that people and places can have on the individual. Seeking alternative support systems can also be helpful. One of the intriguing findings for the Project MATCH outpatient participants was that long-term outcomes at 3 years for those with alcohol-saturated environments were better if they were treated in the 12-step facilitation program *and* used the support of AA groups (Longabaugh et al., 2001; Project MATCH Research Group, 1998a).

RELAPSE AND THE ROLE OF RE-CYCLING

Relapse is most often defined as a return to the problematic behavior, the opposite of successful action (Witkiewitz & Marlatt, 2007). When I first entered the field of addictive behaviors, relapse was considered unique to the addictions and discouraging for researchers and treatment personnel. The infamous relapse curves demonstrated by Hunt, Barnett, and Branch (1971) seemed to indicate that long-term successful change (total abstinence) in heroin use, cigarette smoking, and alcohol dependence was an elusive goal. The lack of success in long-term abstinence rates of only 20–30% was sobering. This led some to make the claims, now considered outrageous, that addicted individuals did not change and that addictions were the most recalcitrant behaviors known to behavioral science. That was before we began to realize that most intentional human behavior change includes a relapse phenomenon. Researchers began to point out that adherence to medical regimens and positive behavior changes like regular physical exercise had relapse rates like those for addictive behaviors (McClellan, Grissom, Zanis, & Brill, 1997). Others noted that failure to make or maintain behavioral changes to manage or prevent illness, even when there was an important wake-up

call (e.g., diabetes diagnosis, heart attack), was the norm and not the exception (DiClemente et al., 2004). Relapse and re-cycling should be considered a normal aspect of the behavior change process, not a problem unique to addictions.

Relapse has different meanings and definitions depending on whether the desired outcome is total abstinence or allows some engagement in the behavior. Although not often recommended by providers, many individuals consider themselves in recovery if they engage in minimal drinking or occasional drug use without returning to any problematic use (Dawson, Goldstein, & Grant, 2007; Fletcher, 2001; Valliant, 1995). Many treatment personnel would consider individuals engaging in such use as relapsed. Yet long-term follow-up studies of individuals who have quit drinking or using drugs indicates that total continuous abstinence is not necessarily the norm as individuals move through the Action and Maintenance stages (Cisler & Zweben, 1999). Slips and infrequent periodic use in highly variable patterns seem to be common, even among individuals who can sustain the change and never return to any problematic engagement in the addictive behavior (Cisler & Zweben 1999; Simpson, Joe, & Lehman, 1986; Vaillant, 1995).

Sustained total abstinence represents the clearest but not the only picture of successful Maintenance (Dawson et al., 2007; Fletcher, 2001; Project MATCH Research Group, 1997a, 1997b; Simpson & Sells, 1982). Longitudinal studies also indicate that over the course of many years (16 in this study) there are substantial rates of remission and relapse for individuals with alcohol use disorders whether they attend treatment or not (Moos & Moos, 2006). It is also important to note that relapse risk declines as duration of remission or recovery increases (Dawson et al., 2007; Finney, Moos, & Humphreys, 1999). Success should not be simply measured by number of drinks, but requires a more complex and dynamic understanding of the process of relapse and re-cycling (DiClemente & Crisafulli, 2017; Witkiewitz & Marlatt, 2007)

No matter how it is defined, relapse is an integral part of human intentional behavior change. Such change requires a learning paradigm, and we do not learn without trial and error. In fact, one-trial learning is a rather rare event and is most often associated with traumatic learning. A child who burns herself touching a stove may learn quickly not to touch a stove. A serious case of food poisoning may stop someone from ever eating a specific type of food again. However, most learning is like learning to ride a bicycle: often falling over in our first trials, then gaining small successes and some confidence about our abilities. Successive approximations are the way we learn most new behaviors or change old ones. It is clearly the way that most addicted individuals find their way to recovery.

Relapse versus Slip

Individuals in the Action stage of change often encounter situations, stresses, and temptations that significantly tax coping efforts and action plans. They often give in to a temptation and engage in the addictive behavior on an occasion. Those who regard abstinence as a piece of fabric that once torn is forever ruined see this single event of reengagement in the addictive behavior as catastrophic. Behavioral scientists, like Marlatt and his colleagues, have attempted to make a distinction between a “slip or lapse” and a “relapse or collapse” (Marlatt & Gordon, 1985). The slip is an occasion or two of use or a brief episode of reengagement in the addictive behavior. Relapse represents a significant return to the problematic pattern of use or engagement in the behavior. From this perspective, slips provide the occasion for learning how to avoid the relapse. The goal continues to be prevention of relapse. Relapse represents a failure for this change attempt and something to be avoided. However, it should not be equated with total failure and the inability to change.

It is not easy to define what constitutes a relapse since maintenance and relapse are dynamic processes (Witkiewitz & Marlatt, 2007). Attempts to define relapse by simply counting numbers of drinks or frequency of use have been problematic (Maisto et al., 2016; McKay, Franklin, Patapis, & Lynch, 2006). Part of the problem is that relapse should be defined in collaboration with the individual trying to change. In reality, relapse occurs when the individual in Action or Maintenance gives up on the change attempt. That can occur no matter what the goal. Whether I am trying to quit completely or stop bingeing and reduce drinking, relapse would represent when I stop trying (DiClemente & Crisafulli, 2017). Before that, recurrence of the target behavior can represent a slip or a struggle to sustain Action. Until the individual gives up and relapses, there is still hope for the individual to right the change process and attain success without necessarily having to re-cycle through earlier stages.

Both slips and relapses provide important occasions for learning and should be viewed as part of the ongoing process of change. Of course, if an individual can learn from slips, make a midcourse correction in his or her planning, and continue successful action, this is a good outcome and can enhance the individual's ability to achieve the change goals. However, if the individual does not make the correction and slips begin to accumulate, the problematic pattern of engagement or use can be reinstated. In this case, the personal plan and/or the abilities to take appropriate action appear inadequate and flawed. This, too, should be an occasion for reflection and learning about what went wrong in order to make a better plan for change in the future.

Relapse—the abandonment of change and return to the problematic pattern of behavior—requires a re-cycling through earlier stages of change to get ready for a potential return to action. Re-cycling is at the heart of this stage model of the process of change. Most individuals do not successfully achieve change of an addictive behavior on a first attempt. Successful changers typically report multiple unsuccessful attempts over a long period before succeeding (DiClemente & Prochaska, 1998). Re-cycling through the stages of change in some sort of spiral fashion seems to be at the heart of long-term successful change (Prochaska et al., 1992). Relapse is the event that commences the re-cycling process. It provides feedback about flaws in the failed plan of action or the inadequately completed tasks needed for changing the addictive behavior. Relapse offers an opportunity to learn how to adequately complete stage tasks, engage appropriate processes, and develop the next plan to avoid the pitfalls of the failed attempt.

Relapse Prevention

Over the past 30 years, the focus of much addiction research and treatment has been on relapse prevention. Alan Marlatt and colleagues developed a model of the relapse process that offered numerous ways to short-circuit and prevent relapse (Marlatt & Gordon, 1985). Quickly there was discussion of how this concept worked across addictions and even with obesity (Brownell et al., 1986). Since then, there have been many attempts to develop relapse prevention programs in the hope of creating more durable change (Brandon, Vidrine, & Litvin, 2007; Quigley & Marlatt, 1996). A review of the literature (Connors, Longabaugh, & Miller, 1996; Donovan, 1996) indicates these programs have had some modest success. However, a recent Cochrane review for smoking found no effect of behavioral skills training (Hajek et al., 2013). Mindfulness-based relapse prevention has also been developed and initial evaluations are positive, but there are not a lot of studies to date (Bowen et al., 2014). Clearly, we have not found the technology or strategies that enable individuals to avoid significant relapse. For some addicted individuals, these programs help prevent a slip from becoming a relapse and enable entry into the Maintenance stage. For others, the data indicate that these programs postpone or delay relapse, giving these individuals more sustained change and a better chance at success in the next change attempt. However, for many who are trying to change an addictive behavior it is difficult, if not impossible, to prevent relapse completely, even with the most sophisticated relapse prevention programs (Brandon et al., 2007; Quigley & Marlatt, 1999). Maintained recovery is not an impossible goal for individuals who relapse. To achieve it, individuals who have

relapsed have important lessons to learn about their pros and cons for change, the power of the addictive behavior, the importance of strong commitment or effective planning, and/or the influence of stress and the social environment. In addition, these individuals must reassess their vulnerability and self-regulation deficits and their skills and abilities to implement plans, as well as review their use of the behavioral processes of change.

Re-cycling

If relapse is an integral part of the basic change process and it is impossible to prevent all relapses, then we need to focus less on solely preventing relapse and more on promoting re-cycling. In other words, we need to focus on relapse as providing critical learning opportunities. The data on re-cycling come from longitudinal research on the process and outcomes associated with addictive behavior change. In one project, we examined the probability of an individual in a stage at one time point moving to another stage 6 months later. We found that the majority (60%) of smokers in Precontemplation and Contemplation at baseline remained in the same stage 6 months later (Carbonari et al., 1999). But the majority (60%) of individuals in Preparation (defined as planning to quit in the next 30 days and having made one previous quit attempt in a 6-month period) made more than one quit attempt, and these individuals ended up in various stages of change 6 months later. A significant number of those in Action (abstinent anywhere from 1 day to 6 months) at the initial time point had successfully moved into maintenance (46%). However, many other smokers who were in Action initially had re-cycled and moved back into Contemplation or Preparation 6 months later. A small but important number of individuals in Action had moved all the way back to the Precontemplation stage and were not seriously considering any attempt to quit smoking in the next 6 months.

Clearly, individuals differ as to where they end up after a failed quit attempt with some, usually the majority, going back to considering or preparing for the next attempt (Prochaska & DiClemente, 1984). Others may give up after having failed to sustain an action attempt at least temporarily. Large numbers of individuals who relapse seem to need some time to regroup and renew commitment before making the next attempt. In our self-help/minimal intervention studies I noted that many individuals attempted to quit smoking soon after entering the study and getting the manuals or other self-help materials. However, in the subsequent follow-ups at 3 months, 6 months, and 1 year, the numbers of new attempts among these individuals after going back to smoking were low. These individuals appeared to need a refractory period before they were

ready for a new attempt to quit. Whether due to disappointment, feelings of failure, or lack of solid decision making, many individuals may need a certain amount of time before they can re-cycle back through the early stages all the way to the Action stage. Others, however, can move back through the recovery stages more quickly.

This spiral movement over time and the process of re-cycling through the stages until the individual achieves successful recovery provide a generally optimistic framework for addictive behavior change (DiClemente, 2005; DiClemente et al., 1992; Prochaska et al., 1992). However, it does not suggest that re-cycling to success is usually a quick process. Rather, the recovery process can extend over periods of time, particularly if success depends completely on trial-and-error learning, as often occurs in the natural environment (Carbonari et al., 1999). This type of learning can be inefficient without some guidance or coaching. The purpose of treatments, self-help, and other types of interventions, then, is to make the learning more efficient. If they are helpful, interventions reduce the time spent in the process of change and the number of relapses and re-cycles needed to successfully move through the recovery stages of change. By better understanding this process of change and the individual journey through that process, we can facilitate movement and re-cycling through the stages and reduce the time needed to achieve successfully established and maintained change.

One of the critical skills needed by both providers and addicted individuals to make re-cycling effective and efficient is to learn from our “failures.” Several recent authors have written about the importance of failure and of learning from failure (Firestein, 2016; Syed, 2015). They emphasize that failure is at the heart of scientific advances and that fear of failure has often kept us from learning and taking chances needed to find success. Syed goes on to say that the most problematic aspect of making mistakes is not learning from them. He presents the airline industry as the poster child for learning from mistakes with their inclusion of a “black box” that tracks functioning on every plane and their use of both extensive debriefing and simulations every time there is an accident or even a near miss. Their dedication to finding out what went wrong and to acting to change practice, policy, or procedures to ensure it does not happen again is a model of how to learn from mistakes. If individuals in Action and the practitioners who are working with them could adopt a black box mentality to tracking and understanding lapses and relapses, we may be able to learn more quickly what needs to be changed to make the next attempt successful. Debriefing a change attempt and the journey through the stages of change could facilitate discovery of what tasks, processes, skills, and situations need to be remediated to make the next attempt more successful and sustained.

TAKING ACTION AND THE LIFE CONTEXT

Resources and problems in other areas of functioning can enhance or undermine initial Action strategies and plans. Contextual problems can hinder implementation of a plan. Family conflicts, addiction-saturated social systems, and psychological and emotional problems can reduce commitment, interfere with coping activities, create stresses that compound difficulties, and offer environments that make abstinence extremely challenging. Conversely, supports and resources that can help to resolve daily hassles, offer material and emotional assistance, and relieve some problems provide a life context that promotes change.

Successful Action also provides a new perspective on problems in other areas of the individual's life. Problems that seemed trivial in light of the serious problems caused by the addiction look different in the light of abstinence. Once change of the addiction has begun, change of other problems becomes more feasible, and often more necessary, to sustain the change. Anger and aggressive behaviors become more accessible to change once the addiction is removed from the equation. Spousal conflicts can be addressed more effectively after there is a period of abstinence from drinking and drug use. Certainly, there is a question of timing. When to tackle an associated problem will be discussed in depth in the next chapter. In Action, the primary focus must be on changing the addiction.

CASE EXAMPLE AND OVERVIEW

The Action stage is filled with use of behavioral processes of change, shifts in self-efficacy, successful distancing from the addiction, and coping with the loss of the addiction (see Table 10.1). The decision to change must be strong enough to sustain Action. Positive experiences that come from abstaining from the addiction ideally would support this decision. Activities that engage the behavioral processes of change require energy and focus. Social environments can offer support either for returning to the addiction or for abstinence. Choosing where to spend time is critical. Personal success enhances confidence in one's ability to abstain across a growing number of situations and cues. Temptation begins to recede as confidence grows across situations.

Anthony Action is a 45-year-old appliance repairman who has been using marijuana for the past 20 years. He is married and has two children, a boy, 15, and a girl, 12. He and his wife used to smoke together at concerts and on the weekends to relax. He also was into motorcycles and would smoke with some of this group of friends. About 4 years

TABLE 10.1. Taking Action: An Overview of the Dimensions of Change

Stage task
Implementing and revising the change plan; maintaining commitment to change in the face of difficulties; managing temptations and slips that provoke relapse.
Change processes at work
Behavioral processes of change, particularly stimulus control, counterconditioning, and reinforcement management, are needed to create change. Self-liberation sustains commitment and helping relationships support change.
<i>Reinforcement:</i> Extrinsic and intrinsic rewards reinforce the change and commitment; alternative reinforcements begin to replace the addiction.
<i>Counterconditioning:</i> Alternative coping strategies are used to deal with emotions, people, and places that trigger the addictive behavior.
<i>Stimulus control:</i> Avoidance of cues and triggers early in Action increases probability of abstinence; minimizing contact with others who engage in the behavior.
<i>Self-liberation:</i> Sustaining commitment to abstinence and the change plan and to revising the plan.
<i>Helping relationships:</i> The person turns to others for encouragement and support for abstinence and for changing the addictive behavior.
Markers of change
<i>Decisional balance:</i> Pros for change may increase as abstinence is experienced as positive; balance continues to be weighted toward change.
<i>Self-efficacy:</i> Confidence in the ability to abstain increases as success in behavior change occurs and extends over time; slips challenge and successful coping increases efficacy; temptations to use decrease in intensity and frequency.
Context of change
Multiple addictions and problems in the life context often interfere with success and provoke relapse; energy and attention can be focused on other problems as the period of abstinence extends over time.
Relapse represents an abandonment of the change attempt and differs from a slip or the struggle to attain abstinence. Re-cycling moves the individual to earlier stages. The re-cycling process should include learning from each attempt at change to turn the current failure to sustain change into successful maintenance and requires a probing assessment into what went wrong in order to learn how to be successful.

ago his wife quit using marijuana. She was concerned about the children and any potential negative effects of parental drug use on them. Although they concealed their use from the children, she believed that her son realized that they used when he was around 11 and found some funny-looking cigarettes. He had a course in school on drugs where they showed them various types of drugs. When he asked, she told him that

she and his dad used to smoke and that these were from an earlier time. She quit then and made Anthony promise never to have any marijuana in the house. Since that time, Anthony would smoke with friends and before coming home from work. However, over the past 2 years he was becoming increasingly concerned about his son. He knew that young Tony smoked cigarettes and drank alcohol. He had been in trouble in school several times for smoking. Anthony felt like a hypocrite lecturing his son while continuing to smoke marijuana. In addition, he felt that the marijuana was having a negative effect on his work and his relationship with his wife.

Recently, Anthony decided that he would quit and 3 weeks ago did so. This was much more difficult than he thought it would be. His initial plan was to avoid his smoking buddies and spend more time at home, where he did not smoke. But he was more irritable than he expected and was getting into conflicts with both his son and daughter, who were not used to him being home. He also was surprised at how angry he would become. Obviously, the marijuana had made him mellow and covered his anger. At first, he thought it was just withdrawal from the drug that was making him so angry and anxious. However, he began remembering that before he began to smoke, he used to be more anxious about being with people and more frustrated with others. He had had some loud arguments with his father over his lack of ambition and his choice of spouse. The family relationships were still strained but there was little contact, so it did not seem to be a problem anymore.

Anthony made it through the first 3 weeks without smoking but was still feeling shaky. He was beginning to leave the house to spend time with friends because of the conflicts at home. He was very tempted, particularly around his two smoking buddies, who were shocked to learn that he was trying to quit. They respected his wishes but were not going to stop smoking in front of him. Anthony knew he had to make some choices about whether to hang around them since he was very tempted when he was in their company and smelled the smoke. Several times he had second thoughts and wondered if quitting was really necessary. One night he almost asked his buddy to give him a toke but thought better of it because he believes if he starts back, it will be difficult to stop again. He has begun to talk with his wife more about how she did it while he continued to smoke.

Several events that are coming up in the next few weeks will be particularly difficult. There is a family reunion with his parents and siblings to celebrate his parents' 50th wedding anniversary. His dad will likely ask how he is doing in his job and possibly make some comparisons with his younger brother, who is a successful realtor. Another upcoming event is the annual Fourth of July rally of the motorcycle club. Anthony

typically spent several days before and after the event with his friends smoking and drinking. Although he is feeling rather confident about abstaining from marijuana in most situations, he is uncertain about what will happen in these two. He does not want to blow up with his father and would feel bad about not participating in the rally because it has always been the highlight of the year for him and his friends.

It is not clear how Anthony will do in the next few weeks. He has made a significant attempt to change. His efficacy and his commitment seem a bit shaky. It would not be surprising to learn that he had a slip one night with his friends if he cannot successfully use either stimulus control or counterconditioning. Managing his emotions will be another critical issue, as will finding alternative reinforcers in his social and family network. When and whether he will address his anger and frustration with his father and his feelings about not being successful are interesting questions for which there is no current answer but can play a role in his recovery.

SUMMARY

As its name implies, the Action stage of change is filled with important action plans and strategies that break the connections between the individual and the addictive behavior. With the successful implementation of the Action strategies and engagement in the behavioral processes of change, addicted individuals begin to create the needed distance from the addictive behavior that allows recovery to begin. It is a tenuous time because the power of the addiction is strong. Only a committed, planned, comprehensive effort can break the multidimensional connections in the areas of physiology, cognition, affect, behavior, and environment that constitute an addiction. However, the initial successful action begun during the Action stage of change lays the foundation of permanent change. Turning that foundation into a solid, sustained recovery is the task of the next stage of change.

CHAPTER 11



The Long Haul

Well-Maintained Recovery

Sustaining recovery involves developing new, strong, and healthy habits as well as repairing the damage done by the addiction.

THE FUNCTION OF MAINTENANCE

The challenge of human behavior change is to make change permanent. In the Maintenance stage, *not* engaging in an addictive behavior becomes established as a personal norm for the formerly addicted individual. Individuals negotiate their way successfully through Maintenance by (1) actively countering any threats and temptations, (2) checking and renewing commitment, (3) making sure that the decisional balance remains negative for reengaging in the addictive behavior, and (4) establishing a protective environment and a satisfying lifestyle. In the Action stage, the task is often simply to refrain from the addictive behavior. However, the absence of the addictive behavior is not sufficient to successfully maintain the change and become an ex-addict. To sustain recovery, new behaviors and reinforcing experiences must become part of a new way of living in the world.

As individuals successfully maintain the change, they use less and less energy and active coping. They develop a solid sense of self-efficacy—of confidence in their ability to avoid the problematic behavior and manage any remaining cues to reengage. Once successful Maintainers have achieved sustained change and the new behavior becomes normative,

they can be considered to have terminated the cycle of change (Prochaska, Norcross, et al., 1994). Termination indicates the successful conclusion of the process of stopping the addictive behavior and the end of the cycling through the stages of change (DiClemente & Prochaska, 1998; Prochaska et al., 1991). Addicted individuals who have reached termination are always vulnerable to re-initiation. However, once they have left the cycle of change and are focused on other challenges of life, the return to the addictive behavior would be a re-initiation (indicating movement through stages of initiation) rather than a relapse. Individuals in sustained Maintenance over time begin to look more like their nonaddicted peers (DiClemente, 1994; Moos et al., 1990). Successfully maintained change is considered by society to be the desired outcome for the cessation or modification of any addictive behavior.

There is a critical difference between well-begun action and sustaining that action over a long period. An addiction is a behavior that resists feedback about consequences and efforts to change. Moreover, there is a tendency for the addictive behavior to regain its position of dominance even after periods of abstinence. Why is maintaining this change so difficult and so important? Once intrinsically rewarding addictive behaviors escape self-regulation, bringing them back under control is exceedingly difficult. Smokers and drinkers often experience this dilemma. They achieve some measure of abstinence and then they begin to believe that they can control the behavior. The thinking often goes like this: "Boy, if I could just smoke two or three cigarettes a day [five a day, 10 a week, etc.]." Or, "If I could have a drink or two occasionally, or use cocaine or heroin recreationally, I would be in great shape health-wise and not have to quit this habit completely." Or, "After all, there is a part of smoking [drinking, drug use] that I really enjoyed." However, maintaining this level of control over an addictive behavior is very difficult for someone who has been dependent on nicotine, alcohol, or other mind-altering drugs. Most often, this smaller number of cigarettes, drinks, or drug-taking events increases a little at a time, and before they realize it these individuals are back to problematic use, smoking a pack or more a day, drinking dependently, or using frequently. This is because the addictive behaviors become entwined with coping mechanisms for handling negative, unpleasant events, interacting with others, feeling good, and, in extreme cases, feeling normal. Maintaining recovery means establishing or reestablishing coping mechanisms that do not include the addictive behavior. Maintenance usually requires individuals to build a new pattern of behavior that excludes all or, at minimum, any significant engagement in the addictive behavior.

The Maintenance stage takes a substantial amount of effort over a significant length of time. If the Action stage takes about 6 months,

Maintenance takes years. However, more than time is needed to define the Maintenance stage and make it the final step in the cycle of change (Prochaska et al., 1992). Maintenance is defined by the critical tasks to be accomplished to enable the addicted individual to leave the addiction behind and look forward to building a new life free of it. The tasks of Maintenance are, first, to sustain change in the addicted behavior for an extended length of time over a wide range of situations and, second, to avoid slips and prevent relapse into the old pattern. Individuals move into the Maintenance stage once they have achieved short-term success in the Action stage and have begun to establish a pattern that excludes the addictive behavior. Discovering alternative activities and experiences can provide some measure of comfort and coping formerly provided by the addictive behavior (Davidson & White, 2007; Vuchinich, 1999). As the individual sustains change through the first phase of recovery, the next challenge is to manage the less-frequent cues and triggers to reengage in the behavior. Building a satisfying and well-modulated lifestyle that offers alternatives to the addictive behavior accomplishes this most effectively. Once this successful alternate lifestyle is in place, there is less need or temptation to reengage in the addictive behavior.

A sociologist colleague has written a book on the process of leaving a profession, marriage, or other role, of reestablishing an identity separate from the prior identity, and of successfully becoming an “ex,” as in an ex-wife, -husband, -priest, -nun, -executive, and so on (Ebaugh, 1988). The process we are outlining as comprising the important tasks to be accomplished in this Maintenance stage is similar. Successfully becoming an ex requires a shift in one’s perception of oneself. All of us know of individuals who, although divorced, have never been able to get beyond being someone’s ex-spouse. This self-perception gets in the way of building new relationships, a new life, and a regained sense of wholeness. An unsuccessful ex always has something missing in his or her self-view. The successful transition and the pitfalls to being an ex as described by Ebaugh are like those experiences and activities necessary to maintain addictive behavior change and become an ex-addict. As long as a significant portion of the individual’s life seems missing, there will be a longing for the addictive behavior. Such a person is not able to successfully move forward and will continue to struggle with Maintenance of the change. The danger of a return is ever-present.

Although behavioral theorists, B. F. Skinner in particular, have long talked about the role of new positive reinforcers to change problematic patterns of behavior, there is renewed interest in this topic with addictive behaviors. Behavioral economics is the study of the competing reinforcers that shape behavior in individuals’ lives using an economics perspective (Bickel, Johnson, Koffarnus, Mackillop, & Murphy, 2014; Bickel

& Potenza, 2006; Vuchinich, 1999). In recovery, for example, the new lifestyle created to replace the addiction should offer rewards that are potentially as meaningful and fulfilling as those problematically offered by the addictive behavior for the personal economics to work. Satisfying alternate reinforcers decrease the value of the addictive behavior. Without these alternatives, the addiction continues to hold its value for those addicted, even though they are not currently engaging in the addictive behavior. Taking away an addiction leaves a void that must be filled by alternative satisfying reinforcers for the economics of recovery to work. Only then can individuals exit from the cycle of change.

Whether an individual will be unable to successfully exit the cycle of change and will need to remain in recovery forever depends on how that individual handles leaving the addictive behavior. The dictum “once addicted, always an addict” seems less an issue of a label (recovering vs. recovered) than understanding the process of becoming an ex.

Defining Characteristics and Dimensions of Change: Maintenance and Termination

The time spent in Maintenance varies dramatically. After about 3–6 months in the Action stage, individuals who have successfully negotiated this first phase of recovery move into Maintenance and face the tasks described earlier. How long they remain in this stage depends on how well and completely they accomplish these tasks. How hard they must work at remaining in recovery is an important indicator. Individuals who have to continually monitor addiction cues and triggers, who long for the addictive behavior, who fail to find adequate alternate reinforcers, and who have been unsuccessful in extricating themselves from an addiction-infested environment remain in Maintenance and must continue to use behavioral and cognitive/experiential processes of change.

In some research studies, we have used an arbitrary time frame of 2 years in Maintenance to indicate the exit from this stage (Carbonari et al., 1999; Prochaska et al., 1991) and to define termination, similar to how time frames are used to define successful cancer treatment (3- to 5-year survival or cancer-free status). However, this has been done out of necessity for research purposes. The more satisfying and accurate way to define termination is an individualized assessment of the critical dimensions of change outlined earlier (DiClemente & Prochaska, 1998). The markers of self-efficacy, temptation, and the behavioral processes of change are good indicators to use in this assessment (Carbonari & DiClemente, 2000). Individuals who experience little or no temptation to engage in the behavior and are very confident (self-efficacious) in their ability to manage or abstain from the behavior across a variety of tempting situations have successfully completed the Maintenance

stage and can exit the cycle of change (Shaw & DiClemente, 2016). The other important indicator is related to the processes of change. Experiential and behavioral change process activities devoted to modifying the addictive behavior decline during Maintenance. As self-efficacy increases, there is less need to engage change processes, so they decrease in frequency and intensity of use. Termination represents the point where there is little or no activity devoted to this process of change (DiClemente & Prochaska, 1998; DiClemente et al., 1985; Prochaska & DiClemente, 1984; Prochaska et al., 1992).

Although efficacy, temptation, and behavioral processes of change are the most important indicators, other dimensions of change are also involved. The decisional balance remains tipped in favor of change, but often endorsement of both the pros and cons diminish in importance (Velicer et al., 1985). The negatives of the addiction and the positives of change continue to outweigh opposite considerations. However, once addicted individuals achieve substantial recovery and successfully become an ex, there is little consideration of pros and cons except for occasional reminiscing. In fact, it is a danger sign of potential relapse or re-initiation of the addiction if the positive aspects of the addiction are still valued or become idealized in retrospect.

Cognitive/experiential processes of change decline during Action and Maintenance, consistent with the shift in focus from attitude change and decision making to behavioral change. It is a striking and consistent finding in our research that some coping activities appear mismatched to Action and Maintenance and can precipitate relapse. Smokers who report engaging in higher levels of cognitive/experiential processes or types of coping activities (consciousness raising, self-reevaluation, environmental reevaluation) during the Action and Maintenance stages have a greater probability of relapsing compared with recovering peers who engage less in these processes (DiClemente & Prochaska, 1985; Perz et al., 1996). During Action and Maintenance, the use of self-reevaluation (being upset with oneself about the problem and thinking negatively about oneself and the problem) has proven to be problematic. Individuals who remain engaged in berating themselves about the past behavior, who are preoccupied with the addictive behavior, or who may be constantly generating guilt and negative feelings about the addictive behavior are not as successful in maintaining change (Perz et al., 1996).

MECHANISMS INFLUENCING MAINTENANCE OF RECOVERY

Once an individual has negotiated successfully the first 6 months of the Action stage, he or she likely has encountered all the most frequently occurring cues and triggers to engage in the addictive behavior. The

individual has experienced 6 months of weekends, 6 months of Mondays and Fridays, which incidentally number only 24 or 25 of each. These numbers are in sharp contrast to the many years of days and weekends spent engaged in the addictive behavior. However, after 6 months or so, some stability is achieved for those who have avoided relapse and sustained change. This initial stability marks the transition from Action to the Maintenance. In Maintenance, the addicted individual will encounter cues and triggers that are less frequent or that have been encountered before but not at such a level of intensity. If an alcoholic, for example, stops drinking in March, the first 6 months will take him through the summer but not a Christmas with family members who are heavy drinkers. Two of my first research interviews were with women who had successfully quit smoking for 4–6 months only to have relapsed in emergency rooms, one with a husband with a suspected heart attack and another with a grandchild who was injured. Less frequent events and intense stressors that may not have occurred during Action are two critical types of triggers that must be negotiated successfully to sustain change and manage the Maintenance stage of recovery.

To successfully cope with these challenges to Maintenance, the addicted individual will need to engage behavioral change processes together with some cognitive change processes to sustain the change. One reason individuals fall back and reengage in the addictive behavior is precisely the naïve belief that the change process is brief. These naïve changers think that after a brief period of successful change they “have it made” and do not have to do anything to maintain the change. Maintenance tasks take a long time to accomplish, although some individuals may find the new freedom from the addiction and the new activities and lifestyle so reinforcing that they experience the passage of time in this stage as not very stressful or effortful.

Maintainers typically need to continue actively sustaining the change. However, the focus of the coping activities shifts. Successful Maintainers use a wide-angle lens and focus more on the larger picture and less on the need to struggle day to day with triggers to reengage. This shift in coping may be as subtle as refocusing on new activities or as dramatic as changing whole areas of life, like furthering education or job training. As individuals move deeper into Maintenance, change process activities most directly related to changing the addictive behavior become less salient. During Maintenance, not engaging in the addictive behavior becomes more habitual and the norm. The tugs and pulls to return become less frequent and intense. Life becomes livable and, most times, more satisfying without the addictive behavior.

It is important to note that the concept of recovery is distinct from and broader than just the maintained change of the addictive behavior

(which is, of course, challenging enough in and of itself). Recovery is a more holistic construct that goes beyond discontinuation of addiction to include wellness and improved quality of life. While it begins in Action and continues through Maintenance, it does not end there. Rather, it continues throughout the entire life of the formerly addicted individual because it envisions wholeness and health as the outcome (DiClemente, 2006; DiClemente et al., 2016).

Maintaining Commitment and Decisional Balance

In the process of creating a new lifestyle and an identity free of the addictive behavior, several specific cognitive and environmental factors need to be addressed. Marlatt and Gordon (1985), in their groundbreaking work on relapse prevention, identified several thinking patterns that are problematic for long-term recovery. To a certain degree, behavioral relapse (reengaging in the behavior) may be secondary to a cognitive relapse process (thinking about the behavior) during Maintenance. In the Action stage a slip and a return to the addictive behavior often can occur before the individual really spends any time considering it. In Maintenance, there usually are subtle cognitive activities that undermine the process of change prior to any behavioral return to the addictive behavior. Marlatt and Gordon (1985) have identified two of these problematic cognitive patterns as the “abstinence violation effect” and “apparently irrelevant decisions.”

The abstinence violation effect is well known to anyone who has been addicted. It is a belief in abstinence as a fragile state that is completely violated by any engagement, intentional or not, in the addictive behavior. Abstinence once breached, even inadvertently, is forever broken. A single breach can therefore grant permission to return to the entire pattern of behavior (Shiffman et al., 1997). With this belief, a lapse can turn quickly into a relapse. As Marlatt and Gordon describe it, violators can quickly go from a lapse to a complete collapse. More recent research has indicated that it is a bit more complicated and reactions to each lapse can be different (Kirchner, Shiffman, & Wileyto, 2012).

There is something to be said for rigid beliefs about abstinence. Even if it can, at times, promote a return to the addictive behavior, a rigid belief about abstinence does have a supporting rationale born of the experience of many addicted individuals. One of the dangers of successfully maintained change is that it can breed overconfidence and cockiness. “I have learned my lesson, I will never do that behavior *to excess* again”; “I have been able to control this behavior for 8, 10, 12 months, so *I must be able to control it now*”; “*One drink* cannot hurt me.” These quotes represent thoughts that have contributed to the first

reengagement and the ultimate return to the problematic pattern of the addictive behavior. To protect individuals from the potential for relapse, many recovered individuals and treatment personnel suggest that abstinence should be treated as a fragile and single fabric that cannot be torn and mended. However, the experiences of successful changers described by Anne Fletcher in her book, *Sober for Good*, sometimes contradict this admonition and indicate that patterns of success can include different approaches and outcomes (Fletcher, 2001).

Both overconfidence and the abstinence violation belief are problematic patterns of thinking. Together they illustrate the dilemma of the Maintainer: how to negotiate the narrow passage between being confident but not too confident, and being able to cope with a lapse and recover from it without giving oneself permission to relapse. There is a delicate balance that must be achieved to successfully complete the tasks of Maintenance and move forward to possible termination from the cycle of change.

“Apparently irrelevant decisions” represent shifts in thinking and in decisional considerations that promote a return to the addictive behavior. The shifts include the slow erosion of the commitment to change and a subtle increase in the positive valence of the addictive behavior. After the passage of time or intervening events, the commitment to change can be undermined. A former, overlearned pattern of behavior will have some influence for a long time. In fact, for most people it will always be easier to return to the addictive behavior than to stay in Maintenance during the initial period of this stage. A process of entropy can occur, where the forces that push toward a return to the addictive behavior sometimes get stronger. Entropy wears down commitment to continue change in the same way that gravity makes continual orbiting around the earth difficult.

A related mechanism undermining Maintenance is the shifting of positive and negative expectancies. There is a human tendency to remember negative emotional experiences. However, especially in relationships, we often tend to romanticize the positive and forget the negative. This tendency may play a role in Maintenance. The further away the former pattern of addictive behavior, the less problematic that behavior often appears. Increasingly, only the more positive aspects of the behavior are remembered. This kind of re-idealizing rekindles desire and reduces resistance to the ever-present cues to reengage in the behavior. Becoming an ex requires a continued nonromanticized view of the prior relationship with the addictive behavior.

Countering these subtle shifts in commitment and thinking are important tasks of the Maintenance stage of change and involve the self-liberation, consciousness raising, and environmental reevaluation

processes of change. When thinking about the former addictive behavior, the Maintainer should actively recall the negative aspects and problems created by that behavior. However, our research does make it clear that individuals in Maintenance should not dwell too much on how bad the behavior has been or on self-recrimination because these thoughts could contribute to relapse. So there must be a balance.

Periodically checking on commitment is another good idea. During Maintenance, the commitment to healthier alternative behaviors ideally becomes stronger. A commitment to a positive alternative is a better option and a more protective long-term strategy than simply a commitment to stay away from the behavior. As one colleague who has been sober for 8 years said, “Drinking has caused me so many problems and my life is so much better now that, even if I could drink socially, I would not want to put myself in harm’s way ever again.” However, if this positive commitment is taking a long time to develop or there is a waning commitment to “all this healthy stuff,” renewing the commitment *not* to engage in the problematic addictive behavior is a needed option.

For some individuals in Maintenance, continued vigilance is not necessary because thoughts about the former behavior have faded. Not having to think at all about the past is a good indication that these individuals have moved forward toward sustained change. In our research, individuals who are in Maintenance and have moved away from any thoughts about the addictive behavior often will complain, only half-jokingly, that the only time they think about cigarettes, for example, is when we ask them all these questions in our surveys.

Although it is important to be vigilant about waning commitment or re-idealizing the abandoned behavior, each Maintainer must find the strategies and alternatives that work best for him or her. The principles are the same, but the personal strategies can be different. Use of the processes of change needs to be titrated to the experience of the individuals as they progress through Maintenance and encounter the twists and turns of life after addiction. This argues for helping individuals evaluate themselves and their vulnerability as they negotiate the narrow passage through the Maintenance stage of recovery.

Creating a Solid Sense of Self-Efficacy

In much of our research, a critical mediator of Maintenance is the development of a solid sense of self-efficacy to abstain from or manage the addictive behavior (DiClemente, Carbonari, Daniels, et al., 2001; DiClemente et al., 1985; Project MATCH Research Group, 1997b; Shaw & DiClemente, 2016). As individuals successfully sustain the behavior change, they develop a growing sense of confidence to perform the

behaviors needed across a variety of situations (Blomqvist, Hernandez-Avila, Burleson, Ashraf, & Kranzler, 2003; Brown, Carrello, Vik, & Porter, 1998; Shiffman, 1982).

It is precisely in the Action and Maintenance stages that the mediational role of self-efficacy appears to be most important (DiClemente et al., 1995). In the earlier stages of change, when individuals are in Precontemplation, Contemplation, and Preparation, efficacy estimates are often influenced by hopeful expectations or feelings of despair rather than by an accurate evaluation of one's ability to abstain or stop the addictive behavior. Once the individual has achieved some measure of success, though, he or she can more accurately evaluate how difficult the task is and how much effort and energy are needed to sustain and maintain the new behavior. Early in the Action stage, efficacy to abstain from drinking, smoking, or gambling is variable. An individual's confidence often depends on the type or intensity of the cue presented. For example, a person can be fairly confident in his or her ability to not drink in social situations but not at all confident about abstaining when angry or frustrated. Confidence grows with successful coping in the settings and situations where the behavior was predominant. As individuals move through Action, use the behavioral processes of change, and successfully cope with the most frequent situations and triggers, they develop more confidence in their ability to resist temptations.

In Maintenance, this confidence or self-efficacy becomes consolidated. Temptations to engage in the behavior become less frequent and intense as the individual creates a different lifestyle. During Maintenance, the more the individual continues to struggle with temptations and finds it difficult to sustain the change, the lower the self-efficacy to abstain and the less motivation there is to continue the change. Thus increasing efficacy and decreasing temptation become markers of successful Maintenance. Remaining tempted with a lower sense of self-efficacy to abstain indicates that the individual is not progressing well through Maintenance and continues to be vulnerable to relapse (Carbonari & DiClemente, 2000; Shaw & DiClemente, 2016).

A solid sense of self-efficacy to abstain from or manage the former addictive behavior is a good predictor of future successful maintenance and a marker of successful movement through the Maintenance stage (Project MATCH Research Group, 1998a). It is difficult to sustain artificially inflated or cocky self-confidence for long periods of time. "Fake it until you make it" works only for so long. It is difficult to simply bluff your way through Maintenance.

Developing efficacy over time differs for individuals. Some become confident early in the Action stage, with this confidence simply growing to the maximum with the passage of time. Others experience a more

variable growth pattern where efficacy plateaus for a period and then grows in the face of certain challenges. For others the experience is one of struggling with temptation and trying to maintain sufficient efficacy to cope successfully with these temptations over a sustained period of time (Fletcher, 2001).

Managing the Interpersonal Environment

A final important influence in the Maintenance stage is that of the surrounding interpersonal environment. Individuals who have been most effective in maintaining cessation usually change the environment to minimize cues that rekindle thinking, craving, or longing. Protected in this way, these individuals also have a better chance of surviving any slips or lapses when their thinking begins to wander or their commitment erode.

An environment that supports the change can be a wonderful asset to the individuals struggling to maintain a change of an addictive behavior. Understanding employers, reinforcing and supportive spouses, inspiring sponsors, caring family, and accepting peers help the person leave the past behind and create a new life pattern. These reinforcing effects support and consolidate the change. Unfortunately, the damage done during the time of engaging in the addictive behavior and a prior pattern of relapsing and re-cycling may have compromised the supportive environment available to most Maintainers. Often there are only a few supportive individuals left in the social network by the time the addicted individual finally achieves a good measure of sustained change. Sometimes only peers from AA, Narcotics Anonymous (NA) or SMART Recovery, and a particularly resilient and persevering parent are available and able to provide this support (Groh, Jason, & Keys, 2008). Maintenance is more difficult without the helping relationships and reinforcement management processes of change that are so critical to recovery, but it is not impossible.

A more difficult challenge is the presence in the immediate environment of people, places, and activities that support the addictive behavior (Litt et al., 2016; Longabaugh et al., 1995; Longabaugh et al., 2010). Maintainers with an environment supportive of the addictive behavior are the most vulnerable to lessening of commitment and cognitive shifts toward a more positive view of the addictive behavior. If an individual in such an environment makes it through Action, he or she must have acquired some good coping skills. Many individuals with addictive-behavior-infested environments relapse during the Action stage. During Action, most of the more successful changers will have modified the environment in order to succeed. However, there are many Maintainers

who have elements in their environment that continue to be encouraging or supportive of the addictive behavior, be it a friend and former drinking buddy, a family member who continues to gamble, a spouse who continues to smoke, or colleagues who continue to use drugs. Managing to maintain commitment and retain a negative decisional balance in the face of the modeling, availability, and possible encouragement of others requires courage, strength, and active coping. Somehow individuals with less supportive environments must separate their actions from those of others and create an internal buffer to protect the change because a more complete external or environmental buffer is not possible. Although more approaches are focused on the important role of social support, how Maintainers cope with environmental pressures to return to the addictive behavior is an intriguing subject that has received far too little scientific scrutiny (Longabaugh et al., 1998; McCrady & Miller, 1993; Mericle, 2014; Meyers, Smith, Serna, & Belon, 2013).

EXITS FROM MAINTENANCE: RECOVERY, RELAPSE, AND RE-CYCLING

There are several common ways to exit from the Maintenance stage. Successful negotiation of the tasks of Maintenance leads to sustained recovery and an exit from cycle of change. But if the individual is not successful in establishing an alternative lifestyle, slips and relapse are real possibilities. In such cases, the individual needs to re-cycle through certain stages once again to learn how to achieve successful completion of stage tasks to maintain recovery. A third, less common outcome is a return to less problematic use with so few negative symptoms as to avoid a diagnosis of severe or even moderate use disorder. Perhaps more than a way of exiting Maintenance, this pattern is an example of continued unstable Maintenance. A final pattern of use that could be considered an exit from Maintenance is one of a return to controlled, socially acceptable and nonproblematic use or engagement, which can occur for some individuals but is unusual those who in the past have met criteria for a severe use disorder or an addiction (Dawson et al., 2006; Feingold, Fox, Rehm, & Lev-Ran, 2015; Ilegen, Wilbourne, Moos, & Moos, 2008).

Recovery

Termination of change has been referred to as an end state in the TTM. There are several important reasons why it is better to consider termination from the cycle of change than to envision Maintenance as a permanent condition that accompanies successful change of an addictive

behavior. For individuals who have successfully consolidated the change into a new and satisfying life with very little potential for a return to the problematic behavior, the change cycle has ended. Their energy should be focused on other areas of life. The change has become habitual and it would take considerable effort and a re-initiation process to go back to the former addictive behavior. Maintained recovery is the norm in this individual's thinking and behavior. The environment now supports a new lifestyle committed to not engaging in the addictive behavior.

It is not impossible for someone to return to an addictive behavior after being in termination. One workshop participant disclosed that she returned to smoking after 8 years of abstinence and feeling that she terminated the cycle of change. However, this return should not be called a relapse. Once having terminated the cycle of change, a return to the addictive behavior should be considered re-initiation rather than relapse. This re-initiation would proceed in a similar fashion to the initiation of addiction. In fact, upon reflection, this smoker admitted that she had reconsidered smoking and decided to return after those 8 years of abstinence. The ex-smoker, -drinker, or -drug user who has terminated the cycle of change can always return to the former behavior and re-initiate more quickly and more efficiently than a neophyte.

These considerations have led me to reevaluate the idea of perpetual Maintenance as promulgated by many treatment and recovery philosophies such as AA. In the AA tradition, the alcoholic is told that he or she is always only one drink away from being a drunk and is always in recovery and never recovered. This is done to emphasize the dangers of relapse and the struggle against overconfidence. This AA perspective is certainly one that supports the fact that long-term maintenance is needed for successful recovery from an addictive behavior. However, continuing a focus on addictive behavior, even though the focus is on avoiding that behavior, may have the unwanted consequence of keeping the habit alive in some paradoxical manner.

Relapse

Relapse is less frequent in Maintenance than in Action but still occurs. Several researchers have noted that relapse continues to be a problem that affects 10–15% of Maintainers over the course of the year or two after quitting and initiating a period of abstinence (Carbonari et al., 1999; Dawson et al., 2007; Kirshenbaum, Olsen, & Bickel, 2009; Moos et al., 1990; Vaillant, 1995). Relapsing after spending a significant period of time in Action and Maintenance stages is a mixed blessing.

The ability to maintain abstinence for long periods of time is a positive indicator for change and bodes well for ultimately being able to

sustain recovery and terminate the cycle of change (Abrams, Herzog, Emmons, & Linnan, 2000; Carbonari et al., 1999; Farkas et al., 1996; Kirshenbaum et al., 2009; Prochaska et al., 1991). In fact, several studies have argued that a composite of addiction (dependence) and change variables that includes the longest previous quit attempt can be a more effective predictor of successful smoking cessation than stage of change (Abrams et al., 2000; Farkas et al., 1996). However, these studies demonstrate an inadequate understanding of the complexity of the relapse and re-cycling process (Witkiewitz & Marlatt, 2007). Increasing time in the Maintenance stage demonstrates that the individual has learned to make the changes and create alternatives that support recovery. Nonetheless, since the individual returned to the addiction, there are some defects and inadequacies in the change process and/or plan that may need to be remedied. The learning principle of successive approximations would support the potential for these individuals to be more successful in maintaining change the next time they re-cycle through the stages and take action (Heather & McCambridge, 2013). The adage that the best predictor of future behavior is past behavior is based on this learning principle. Comparing measures that reflect re-cycling through the stages against the smoker's stage status at the beginning of an arbitrary period of time defined by a research study seems counterproductive. Successful periods of abstinence can provide a firm foundation for re-cycling and more effective and efficient movement toward recovery.

On the other hand, a relapse after a period of significant success can be particularly disheartening. Often these individuals become discouraged about the possibility of conquering the addiction. Some even return to the Precontemplation stage (Carbonari et al., 1999). The shifts between abstinence, lapses, and relapses are complex and difficult to examine. Lapses do not always lead to relapse, and relapse and abstinence often are part of the pattern of changes after treatment (McKay et al., 2006; Rounsaville, 2010). Individuals experiencing this roller coaster often give up. They need to be convinced that they have the skills to do it again if they can muster the courage and conviction to re-cycle through the stages.

Re-cycling

Re-cycling from the Maintenance stage may be more efficient and effective than re-cycling early in the Action stage. The best estimates of the number of addicted individuals who relapse come from longitudinal studies of smokers. In one study, stage status was examined at time points 6 months apart over 30 months. In this study, during a 6-month period approximately 15% of those who had achieved at least 6 months

of abstinence from smoking relapsed back to smoking (Carbonari et al., 1999). Of that 15%, a few (2%) moved all the way back to the Precontemplation stage, with no serious consideration of quitting again in the next 6 months. Most, however, were in the Preparation (6%) or Action (7%) stages of change. Instead of being discouraged about change, these individuals, who had relapsed in the Maintenance stage, were in the midst of planning or taking action to quit smoking. This makes sense. Those who have maintained recovery for at least 6 months have gained a significant amount of confidence in their ability to manage many of the triggers to engage in the addiction. They know how to use the behavioral processes of change effectively enough to produce some stable change. They have sustained a negative decisional consideration long enough to support the decision and continuing commitment to stop the addiction for a substantial period. In summary, they have learned a lot about how to change the addiction.

Re-cycling through the stages of change is about learning from the relapse. Re-cyclers from Maintenance must figure out what went wrong so late in the process of recovery and find a remedy. Was there a problem with erosion of commitment and shifting decisional considerations, or was there simply an unanticipated and powerful event or trigger in the external environment? Or was the reason for the relapse in the context of change? The latter is often the case. Problems in other areas of life functioning (marital, psychiatric, employment, etc.) can create difficulties or distress that overwhelm behavioral coping or undermine efficacy needed to sustain the change. Whatever the origin, the re-cycling process must reestablish the decisional balance and reevaluate and create another change plan to transition forward once more through the stages of recovery.

In a rather tragic case, one woman, Serena, had been in recovery for many years from both cocaine and alcohol. She had lived a sober life for 10 years or more, getting her GED and then a master's degree in special education. She had a good job as a teacher and had attended AA and had a sponsor. When she met and fell in love with a man with a very active social circle and lifestyle that involved drinking, she was reluctant to disclose that she had a drinking problem. Over time she began to drink some "near beer," which had no or low alcohol content. As she became more involved with this man and his social group, she began to experiment with regular beer and managed to control her intake for a while. As issues of intimacy and the future of the relationship arose and stress increased, she began to drink more heavily and returned to a severe alcohol use disorder that affected her health, her job, her relationship and her family life. Even with years of sobriety and sustained change, Serena was vulnerable to a re-initiation of problematic drinking. Her

own discomfort with acknowledging the problem and the need to stay sober, coupled with the relationship pressures and emotional issues, led her back to the addiction. Clearly, individuals in recovery must manage a host of other life problems without the familiar coping mechanism of the addictive behavior.

MAINTAINING RECOVERY AND MANAGING OTHER LIFE PROBLEMS

Once the individual has gained some distance from the addictive behavior and no longer has to struggle on a day-to-day basis simply to stay sober, he or she is free to work on other problems that may have preceded or resulted from the addictive behavior. Poor academic achievement, problematic relationships, and inadequate vocational direction or training can contribute to the onset of an addiction. Once-addicted individuals accrue multiple consequences, so that their lives are filled with the residual debris, for example, legal problems, angry and disappointed children, poor work skills, and the like. In Maintenance, these problems begin to be addressed and managed. The recent emphasis on recovery and recovery-oriented systems of care reflects the need to address and manage other life problems and offer a more comprehensive, holistic, and integrated perspective on health as the goal of long-term maintained change (DiClemente et al., 2016; Kaplan, 2008; Kodner, 2008; McClellan, Arndt, Metzger, Woody, & O'Brien, 1993).

As mentioned earlier, individuals who are successful over time in resolving or at least successfully managing problems in other areas of functioning come to look increasingly like their peers who did not become addicted (DiClemente, 1994; Moos et al., 1990; Vaillant, 1995). Solutions to employment, relationship, and existential problems increase the distance from the addictive behavior and help the individual to create a new lifestyle that is protective and satisfying. Changing the addictive behavior reverberates in multiple areas of the individual's life in a way similar to that of becoming addicted.

As the formerly addicted individual successfully remains in recovery, it becomes easier to see which problems were caused by the addiction and which were preexisting problems. Maintained recovery allows the individual to focus on problems in the life context that need attention. This is particularly true for psychiatric problems faced by dually diagnosed individuals. Those suffering from bipolar disorder, major depression, or schizophrenia will need significant assistance. Individuals whose drug use interfered with academic achievement and the development of valuable work skills will need remediation so they can build

a new life distant from the addiction. Those with impaired social and interpersonal skills will need to learn or repair them to build a network of support that will sustain change. The Maintenance stage is often very busy with addressing problems across multiple areas of functioning.

The process used to recover from an addiction is the same one used to address any life problems (Delahanty, DiClemente, Havas, & Langenberg, 2008; Prochaska & DiClemente, 1984; Redding et al., 2015; Werch & DiClemente, 1994). The specific behaviors that need to change will differ, but the process of intentional behavior change is the same. Individuals in recovery likely will move through similar stages of change for problems in other areas of functioning. They must acknowledge the problem and need for change, create a decisional balance that supports it, make a viable plan for change, and follow through with the actions needed to change the new target behavior. Then they must work to sustain that change. Experience with the process may make changing other behaviors a bit easier. The successful Maintainer has negotiated the stages for the addiction. However, failure to recognize the need to transition through the same stages and successfully complete similar tasks can fuel an inefficient search for a separate process for each problem. Learning how to change an addiction offers valuable tools and experiences to deal with one's entire life context (Prochaska, Norcross, et al., 1994).

CASE EXAMPLES AND OVERVIEW

Maintenance is marked by significant shifts in self-efficacy, successful distancing from the addiction, and creation of a new life filled with new alternative reinforcers (see Table 11.1). Becoming an ex-addict requires continued vigilance and effort until the individual can exit the cycle of change. Personal success in managing the addiction and in creating a new lifestyle enhances efficacy to abstain. The gap between the levels of temptation to engage in the addiction and confidence to abstain continues to increase until they peak and support exiting the process. Life context problems continue to improve and are managed in ways that support recovery. However, the term *recovery* includes a perspective that is larger than the addiction and really is about reclaiming the life that was short-circuited by the addiction. It involves learning how to manage one's life in a satisfying, healthy, and productive fashion (DiClemente et al., 2016).

Margaret Main is a 40-year-old single mother, who became addicted to heroin in her late 20s. During the 12 years when she was using, she experienced several severe consequences, including losing custody of her two children, arrests for prostitution, bouts of sexually transmitted

TABLE 11.1. Maintaining Recovery: An Overview of the Dimensions of Change

<u>Stage task</u>
Sustaining change over time and over a wide range of situations; avoiding slips and relapse; creating a new life filled with alternative rewarding activities and coping mechanisms.
<u>Change processes at work</u>
Behavioral processes of change, particularly reinforcement management and counterconditioning create competing rewards and increased efficacy for recovery. Some experiential processes are needed to protect against problematic thinking patterns. Processes needed to deal with life context problems become more salient. <i>Reinforcement:</i> Alternate behaviors produce rewards that reinforce recovery, replace the addiction, and create the new lifestyle. <i>Counterconditioning:</i> Alternative coping strategies are used to deal with emotions, people, and places that trigger the addictive behavior and become the norm for dealing with life. <i>Helping relationships:</i> Social networks supportive of abstinence replace addiction-encouraging ones. <i>Consciousness raising and self-reevaluation:</i> Recognizing and reevaluating thinking that could support re-idealization of the addiction, the abstinence violation effect, and/or apparently irrelevant decisions.
<u>Markers of change</u>
<i>Decisional balance:</i> Balance continues to favor recovery; concerns about pros and cons decrease in intensity as new lifestyle takes hold; protect against reemerging addiction pros. <i>Self-efficacy:</i> Confidence to abstain grows and temptations decrease. Efficacy becomes a critical indicator of success.
<u>Context of change</u>
Other problems in the life context begin to be seen more clearly once the struggle with the addiction eases and to emerge as a focus for change either because they threaten recovery or are needed to create a new life sufficiently rewarding to sustain recovery.

infections that ultimately required a hysterectomy, and other serious health problems. She has been clean for the past 18 months and still goes to outpatient groups at the treatment center where she spent 3 months in residential treatment. She also currently lives in a halfway house. For the past year, she has been working as a computer technician. The treatment program she attended had an innovative work preparation component. It helped women who had graduated from high school to learn basic computer technology and to be hired by a high-tech company supported by a federal grant. Margaret was hired full-time after the training and

is now earning a decent salary and is looking for her own apartment. She has distanced herself from her former heroin-using friends and has begun attending church. She has also reestablished connections with her family and regularly visits her children, who live with her mother. She has also begun to work on her issues of mistrust and anger with her father and other men in her life.

Margaret is well on her way to recovery. Her growing confidence will be protective, and her newfound profession should offer satisfaction and support for building her new life. Her move to her own apartment will test her recovery. She has begun to date a coworker who has had a drinking problem but is also in recovery. Her therapist is concerned about this relationship because her partner has some history of violence toward women. Margaret, however, is not as concerned because she believes that he has changed and he has always treated her with respect. He also seems to be very accepting of her children, which is very important for Margaret. There are still some hurdles to overcome and some areas where there are clear dangers to her sobriety. Using a variety of behavioral processes of change, Margaret continues to build a life that excludes the former addiction. She is discussing issues and becoming aware of potential problems before they catch her unawares, as happened in previous attempts to get clean. Occasionally, she gets one of her old feelings that used to lead immediately to drug seeking. These feelings are becoming less frequent, and she knows that they will go away in a fairly short time. She has a quiet confidence that this time she will make it.

Margaret's story is in sharp contrast to her housemate, Rita Relap. Rita went through the same residential program and has been in the halfway house for 6 months. She has been in recovery for 9 months but has had two slips, one right after she came to the halfway house and another about 3 weeks ago. Rita did not qualify for the computer technician program and has obtained a job working for a janitorial firm that has a large contract to clean the local schools. Rita is 35 and has no children. She was married to her high school sweetheart for 5 years, but when he left her, life went downhill and she developed a serious cocaine addiction. Rita misses the excitement and highs that the cocaine provided to her life. She has been diagnosed with persistent depressive disorder and is taking antidepressants for this condition. However, she has been gaining weight and feels like she is becoming less attractive. Rita has one close friend at the halfway house and does attend some NA meetings, but is pretty much a loner. At work she is becoming friends with a man who is younger but somewhat demanding.

Although Rita is in the Maintenance stage of recovery from her cocaine addiction, her prognosis is poor for remaining in Maintenance

and terminating the cycle of change. Temptations are still strong. Slips indicate some weakness in her plan for sobriety and continued access to cocaine. Complications from her psychiatric disorder and her current relationship undermine her positive feelings about recovery and thus her efficacy to abstain. The treatment staff has been discussing all these issues with her but have noted that Rita seems discouraged and down. Although recovery and continued Maintenance are possible, additional positive reinforcers for sobriety, a more extensive support system, and significant additional work on her life context problems would be needed to make it happen.

SUMMARY

The focus of Maintenance is the need for generalizing learning across situations and time. Learning how to avoid the addictive behavior, however, represents only part of the process. Successful recovery from an addiction also requires learning new behaviors and modifying many other behaviors to sustain the change. Maintenance goes beyond concentrating on a single addictive behavior and extends into larger areas of the individual's life. The TTM uses the same stage perspective and dimensions of change to conceptualize the process of change for these multiple problems and includes the interaction of these multiple problems and their solutions within the tasks of Maintenance. Successful negotiation of Maintenance tasks leads to the termination of the process of change for recovery from addiction. Termination indicates the end of the cycle of change and is marked by dramatic decreases in temptation and behavioral processes of change and significant increases in self-efficacy to abstain from the addiction. Termination allows addicted individuals to invest their entire energy and attention in creating the alternate lifestyle needed to become a successful ex-addict and ensure sustained and holistic recovery.

PART IV



RESEARCH AND INTERVENTIONS AND A COMPREHENSIVE UNDERSTANDING OF ADDICTIONS

CHAPTER 12



Designing Interventions

Research Informed by the Process of Initiation and Recovery

Research and evaluation studies will not advance knowledge or improve interventions unless they are designed to be sensitive to the process of human behavior change for becoming addicted and recovering from an addiction.

ADVANCING THE RESEARCH AGENDA

The process of human intentional behavior change offers a unique, dynamic view of how one becomes addicted and negotiates recovery. What is new and exciting about this change perspective is that it can provide a continuous, integrated view of the entire process of entering and exiting from addictions. It allows the field to move from a static, linear, and dichotomous view of addiction to one that incorporates the nuances of developmental, longitudinal, multidimensional change perspectives. Viewing addiction and recovery in this way offers addiction researchers and program evaluators an overview that organizes multiple dimensions and influences and provides an integrative perspective for the multidisciplinary viewpoints needed to adequately address addiction (DiClemente, 2015).

Addiction research has become more sophisticated and extensive over the past 30 years (Glantz & Pickens, 1992; Koob & Le Moal, 2008; Marlatt & Gordon, 1985; McCrady & Epstein, 2013; Miller & Carroll,

2006; Volkow & Morales, 2015). However, as noted in Chapter 1, the field lacked a way to integrate the complex relationships among different end points, risk and protective factors, and unique dimensions of the different addictive behaviors. The tasks identified in the stage of change transitions provide a dynamic framework for examining the interactions between these tasks and the important biological, psychological, and social factors involved in addiction and recovery. The cognitive/experiential and behavioral processes of change constitute measurable mechanisms that build a bridge between multidimensional influential factors and the specific transitions through the stages. The markers of change identify important variables of the process of change that can be used as indicators of specific transitions and end points in their own right. The context of change outlines areas of functioning that constitute risk and protective factors. These areas should be considered and evaluated to see how they interact with specific stage transitions in order to estimate their impact on the process of addiction and recovery. These dimensions of change challenge scientists and evaluators to examine addiction and recovery in light of the process of intentional behavior change. By incorporating process dimensions in design and conceptualization of studies, research can address three main deficits in many of the current studies.

1. First, many studies fail to make critical distinctions among change dimensions in the questions addressed and populations studied. Does the sample of individuals recruited into the study represent the entire population in all stages of change, or do they primarily come from one or two stages? For example, prevention studies with a sample of adolescents primarily in Precontemplation would differ from one that had adolescents in preparation or action for initiation. How relevant is the examination of the phenomenon of interest among participants who represent different stages? Examining self-efficacy among individuals in Precontemplation can be misleading since there are many who feel very efficacious about their ability to change who are not motivated to do so (DiClemente, Doyle, & Donovan, 2009). Do two studies differ because they have recruited samples from different stages of addiction or recovery? Studying relapse comparing one group of individuals well into Maintenance to one primarily consisting of individuals early in Action would be unfair and misleading. Epidemiological studies that report prevalence based on a 30-day reported use fail to inform readers whether these individuals were first-time experimenters, casual users in preparation, or individuals with regular Maintained use disorders. Failure to delineate stage status of participants in addiction studies can seriously affect the results and implications.

2. A second deficit is that studies often examine inappropriate or unlikely end points that may have little variance in some populations, seriously limiting their ability to find predictors or differences among treatment and control groups. Although it may be rather easy to get at expectations of fourth graders about alcohol consumption, measuring actual consumption is problematic. Almost all these students will be in the earliest stages for acquisition of drinking behavior, so consumption as an outcome is not informative. Is behavior change a realistic short-term goal for addicted individuals in Precontemplation for recovery? Using total abstinence, sustained over 6 months, as the only relevant outcome for a program that recruits mostly individuals in Precontemplation seems particularly unjustified, as does comparing programs that have dramatically different mixes of clients in terms of their stages of change using a single behavioral outcome (McLellan et al., 1995).

3. A third deficit involves the lack of process research and measures that focus on how, not whether, this or that result was found. Etiological research most often measures only prevalence of use and not movement of the population through the stages of addiction or recovery. Treatment research often fails to measure important critical markers and processes of change that could explain how a treatment did or did not operate as expected (Longabaugh & Wirtz, 2001). The recent focus on mechanisms of change attempts to remedy this lacuna but often studies are of therapist strategies or treatment mechanisms and not personal process mechanisms that are the heart and soul of change (DiClemente, 2007; Longabaugh & Magill, 2011).

This chapter examines several broad areas of intervention and evaluation research and reviews how the process of change perspective and the dimensions of change can enrich these endeavors. It concludes with an exploration of how the TTM can contribute to some current special topics of interest, including cultural competence, pharmacological treatments, harm reduction, and dual diagnosis.

OUTCOME RESEARCH

The task of specifying and validating outcomes for addiction prevention and treatment programs is a challenging one. The coveted goal for prevention programs has been stopping people from ever engaging in or experimenting with any addictive behaviors. On the treatment side, the gold standard for recovery has been total abstinence. However, total avoidance or total abstinence from all addictive behaviors is

difficult to achieve and problematic to validate, even with sophisticated biochemical or other objective markers (Babor, Steinberg, Anton, & Del Boca, 2000; Del Boca, Babor, & McKee, 1994; Finney, Moos, & Timko, 2013; Grant et al., 2012; Miller & Del Boca, 1994; Wagner & Anthony, 2007). For many individuals, abstaining from any experimentation does not allow for experiences that could lead to a firm determination not to become involved with an addictive behavior. Achieving total abstinence after one has become addicted is often a long-term goal achieved only after many attempts to change. Even for those who are considered successfully recovered, the abstinence they achieve is not always total (Cisler & Zweben, 1999; Dawson et al., 2007; Ilgen et al., 2008; Project MATCH Research Group, 1997a; Schuckit & Smith, 2011; Vaillant, 1995). Moreover, neither total avoidance nor total abstinence takes into account that some individuals can engage in self-regulated use.

Another problem that exists when researchers and policymakers define outcomes is the confusion between *behavioral outcomes* and *outcomes of behaviors*. Long-term outcomes like reducing incidence of lung cancer following smoking cessation and lowering of body mass index scores in a population exposed to a dietary or activity intervention involves consequences of behavior change that do not immediately follow behavior change. These types of long-term outcomes depend on sustained change and a host of other behaviors related to specific behavior changes. For example, expecting recovery and wellness outcomes for a sample of individuals who have been dependent on alcohol or drugs requires more than simply abstinence from these substances. Not only do behavioral goals need to be specified, but also long-term outcomes of behavior change need to be defined that carefully understand the multidimensional nature of these larger, population-based outcomes (DiClemente et al., 2010).

Defining realistic behavioral goals for addiction and recovery becomes more challenging but conceptually clearer if we can frame the behavioral goals in the context of the process of change (DiClemente, 2005; Velicer, Prochaska, Rossi, & Snow, 1992; Werch & DiClemente, 1994; Werch, Moore, DiClemente, Bledsoe, & Jobli, 2005). In order to stage a behavior, it is critically important to clearly define what constitutes Action and distinguish it from Maintenance for that behavior. For example, self-regulated use of alcohol can be defined as never having a drinking occasion where the individual drinks more than four or five drinks. That definition, then, becomes the Action criterion, and maintained self-regulated use would consist of more than 6 months of drinking responsibly without an excessive drinking occasion. If cutting down

on cigarettes so that only smoking on weekends is defined as success, then this pattern of smoking behavior becomes the Action criterion and successfully sustaining this pattern for more than 6 months becomes maintenance. If not driving after drinking is the goal, successfully achieving this behavior becomes the Action criterion. If total abstinence from heroin is the goal, then total abstinence from heroin but not necessarily from marijuana or nicotine is the Action criterion. If preventing any experimentation is the goal, then never smoking a puff or trying marijuana would be the Action criteria. If the goal were preventing any regular use of a substance, then multiple use events and not experimentation should be the defined Action criteria.

Staging intentional behavior change requires specificity in the behavioral target. If researchers are very clear about the specifics of the intended behavioral outcome, they could examine in greater detail the process of addictive behavior change. Although staging behaviors and classifying individuals into distinct stages is difficult (Carey, Purvine, Maisto, Carey, & Barnes, 1999; DiClemente et al., 2015; Littell & Girvin, 2002; Miller & Tonigan, 1996; Sutton, 2001), it is worth the effort to divide the population by the various tasks of the stages whenever possible. At minimum, identifying individuals at various points in this process of readiness and motivation to change is more helpful than simply measuring the actual behavior (Carbonari & DiClemente, 2000; Carney & Kivlahan, 1995; Connors et al., 2013; DiClemente & Prochaska, 1998; Edens & Willoughby, 2000; Joe, Simpson, & Broome, 1998; Rothfleisch, 1997; Velasquez et al., 2015).

Specifying the Action criterion, however, is only the first step in being able to examine the multiple outcomes related to the process of change involved in addiction. The specificity of tasks, goals, processes, and markers related to the different stages of change offer a rich array of alternative starting points and outcomes for researchers. In fact, when examining addictive behaviors, researchers should be required to report the starting points as well as the outcome or end points on these dimensions for participants in their research. For example, specifying as an outcome drinking any alcohol during a 1-month follow-up is not as useful if the group studied consisted of children in Precontemplation for drinking than if it consisted of young college adults in Preparation or Action for drinking. For the former, expectations, decisional considerations, beliefs, intentions, and efficacy to avoid would be more appropriate outcomes to evaluate before and after an intervention. Outcomes for any type of prevention or intervention program must be conceptually and practically consistent with participants' status in the process of becoming addicted or achieving recovery.

Often researchers attempt to manage initial discrepancy in exposure or stage status by statistically covarying baseline values of these important characteristics. However, this type of procedure often can remove important information, as it attempts to make the groups equivalent on certain characteristics when it should be precisely those differences that we examine. Most often, the key question of the research is precisely how the prevention programs, for example, work for different groups of individuals: those who come into the study already exposed, those considering use, or those who have no intention to use. Removing variance associated with these differences can be counterproductive. Luckily, statistical methods able to handle multiple constructs and multiple markers of single constructs as well as how these change over time are continually being refined in order to examine complex interactions across time (Collins & Horn, 1991; Collins & Lanza, 2010; Timms, Rivera, Collins, & Piper, 2014). Tracking the journey to successful change of addictive behaviors necessitates complex, longitudinal, interactive analyses (Collins & Sayer, 2001; Hayes & Preacher, 2014; MacKinnon, 2008; Witkiewitz & Marlatt, 2007).

Examples from research can illustrate the importance of stage status and process of change measures. Project MATCH, a large multisite clinical trial to evaluate the effectiveness of matching client characteristics with specific treatments, examined a variety of process and outcome measures (DiClemente, Carroll, Connors, & Kadden, 1994). One study evaluated the effect of the working alliance (client and therapist perceptions of the mutuality in bond, task, and goals) on drinking outcomes of clients. These researchers found a significant small effect of higher working alliance scores, measured at the second session of treatment, on the frequency and intensity of drinking in the year following treatment (Carroll et al., 1998). However, a subsequent study examined the impact of the client's initial stage or readiness to change on both the working alliance and treatment outcomes. This study found that readiness to change not only predicted both client and therapist ratings of the alliance but also significantly moderated the effect of working alliance on drinking outcomes (Connors et al., 2000). Thus individuals who were more ready to change when they came into treatment rated their working alliance with the therapist more highly and had better outcomes. Other analyses demonstrated that client readiness to change prior to treatment and not treatment type predicted drinking outcomes up to 3 years post-treatment. Readiness also predicted engagement in the cognitive/experiential and behavioral processes of change during and at the end of treatment and successful movement through the process of change to achieve abstinence (Carbonari & DiClemente, 2000; DiClemente, Carbonari, Zweben, et al., 2001; Project MATCH Research Group, 1997a, 1998a).

Initial stage status influenced treatment and change mechanisms as well as drinking outcomes.

Prevention programs and research also need to be aware of the impact of the initial stage status of participants. Several studies that targeted children in early stages of engagement in an addictive behavior found little change in actual behavior over time (Gritz et al., 1998; Werch, Carlson, Owen, DiClemente, & Carbonari, 2001). However, the research has been able to detect subtle attitudinal differences in these types of populations (Hudmon et al., 1997; Werch et al., 2001). Werch (2001) has argued that the initial staging is critical in organizing and targeting prevention programming precisely because of the potential impact of stage status on prevention outcomes. It also seems true that not only are outcomes influenced by initial stage status, but they also should be differentiated based on stage status of the individuals who enter the program. Studying only behavioral outcomes for individuals in early stages of change often fails to yield enough variance to examine statistical significance. More subtle measures of the dimensions of change could provide greater sensitivity with which to examine engagement or prevention outcomes.

In addition to the behavioral outcome of engaging in the addictive behavior, addiction and recovery involve biochemical and brain dimensions, socioenvironmental influences, and psychological processes (Leshner, 1997; Volkow et al., 2016). It is becoming clearer that these biological, psychological, and social factors play important but somewhat different roles depending on whether the change process is one of engagement in or cessation of an addiction (Donovan & Marlatt, 1988; Glantz & Pickens, 1992; McCrady & Epstein, 2013). More important, however, the research is also beginning to indicate that the impact and importance of each of these multidimensional aspects can vary with the individual's stage of change and can interact with the other dimensions of change (Baumann et al., 2012; Brown, Melchior, Panter, Slaughter, & Huba, 2000; DiClemente, 2005; DiClemente et al., 2009; DiClemente, Nidecker & Bellack, 2008; Heather, Hönekopp, & Smailes, 2009; Ilegen et al., 2008; Pollak, Carbonari, DiClemente, Niemann, & Mullen, 1998; Walton et al., 2008; Willoughby & Edens, 1996). Thus primary and secondary outcomes should be viewed in the context of the dimensions of change described in the TTM.

PROGRAM EVALUATION

The sensitivity and specificity provided by the dimensions of change also can enrich program evaluations. There are broad ranges of interventions

classified as either prevention or treatment programs in the field of addictive behaviors. All of these programs exist in a broader context of cultural and social factors that influence the process of change. This context of change interacts with the process of change and certainly affects movement through the stages of change for the individuals who are touched by these programs. Thus program evaluations should consider both the context of change and the other dimensions of change in order to assess program impact.

Several specific recommendations can be made to those involved in program evaluation in prevention and treatment of addictive behaviors. First, programs to be evaluated should be asked to provide an accurate description based on the dimensions of change of the population served and the types of outcomes desired. Evaluations should be specifically designed to assess relevant dimensions rather than using a "one-size-fits-all" evaluation protocol. Programs whose modal clients are predominantly in Precontemplation for quitting cocaine, perceive themselves as hopelessly addicted, are homeless, and have multiple complicating problems with few resources in the context of change should not be evaluated solely on cocaine abstinence. Moreover, they should not be compared with the Betty Ford Hazelden Clinics or other programs that attract more motivated, competent clients with access to significantly more resources in various areas of the context of change. Programs can always look better in terms of outcomes if they are allowed to eliminate those clients who are in earlier stages of change, those who have poorer prognosis, and those who have multiple problems (Ryan, Plant, & O'Malley, 1995). However, if programs cannot be selective and provide no barriers to screen out the less motivated, outcome expectations for their clients should focus on realistic goals related to the stages, processes, markers, and context of change. This is not the same as claiming that the intervention probably moved participants along the stages of change when the researchers or evaluators find no differences in behavioral outcomes.

Evaluators should examine the entire process of change to identify types of outcomes that are relevant to the program. A detoxification program should be evaluated on how successful it is in stabilizing a client and motivating him or her to engage in treatment or move toward recovery. A long-term residential treatment program can be evaluated on movement through the stages of change that have occurred not only for the target behavior but also for contextual areas of functioning and other recovery dimensions in addicted individual's life (DiClemente et al., 2016; McLellan et al., 1997; Schmidt & Weisner, 1999). Brief treatment programs should be evaluated on how effectively they promote movement through the stages of change to modify the target behavior and

not simply whether they have achieved abstinence (Myers, Brown, Tate, Abrantes, & Tomlinson, 1999). Smoking cessation programs aimed at pregnant women should be evaluated on how they have succeeded in protecting the baby during the pregnancy and not necessarily whether they produced postpartum cessation (DiClemente, Dolan-Mullen, et al., 2000; Stotts et al., 1996; Stotts et al., 2009; Windsor et al., 2000). Dual-diagnosis programs should be evaluated on types of outcomes as well as on process of change dimensions related to each of the two problems (Bellack & DiClemente, 1999; Blume & Schmalings, 1997; Carey, Pur-nine, Maisto, Carey, & Barnes, 1999; DiClemente et al., 2008). Inappropriate program goals and failure to evaluate critical, program-specific outcomes do a disservice to the programs evaluated and make it difficult to compare outcomes across programs, to identify best practices, and to offer specific recommendations for improving services.

Finally, program evaluation should examine short-term as well as long-term outcomes. The process of change is marked by movement back and forth through the stages as well as cycling and re-cycling through the stages. Programs that plant seeds should not be evaluated in the same time frame as those that harvest the grain. Every treatment program, for example, wants to be the last treatment program that was associated with the successful recovery for this addicted individual. However, at any point in time, many of the clients in any single treatment program have been through many other treatments. Almost 50% of the 952 clients who participated in the Project MATCH outpatient treatment research had prior inpatient treatment. To pretend that all the other treatments did nothing and that the final treatment program should receive all the credit for recovery is foolish. It is as difficult to apportion out the credit for an addict's recovery as it is to assess the blame for an adolescent moving forward to become addicted. Multiple influences and experiences play a role in movement through the process of change. Program evaluators who ignore this reality are destined to examine only a small part of the picture.

PROCESS RESEARCH

One of the most important implications of the TTM of intentional behavior change both for outcome researchers and for program evaluators is the need to integrate process research into every study. Often there has been a distinction made between outcome research that concentrates on intervention effectiveness and process research that focuses on mechanisms of action. That distinction is blurred when one views addiction

and recovery as a process of change. Sometimes process variables can be viewed as outcomes and some behavioral outcomes are clearly part of the process of addiction or recovery. Decisional balance, for example, can be viewed as an important marker of movement as well as an outcome of an intervention promoting change. The same is true of the processes of change, self-efficacy, temptation, and contextual areas of change. Research can examine which techniques successfully engender a specific experiential or behavioral process of change or use that process as an outcome variable (Daniels, 1998; Havas et al., 2003; Velasquez et al., 2015). Another research project could look at which processes are related to producing behavioral outcomes like smoking abstinence (Perz et al., 1996). Similarly, an episode of experimentation with a substance can be evaluated as an outcome in its own right but can also be seen as part of Contemplation stage activity. A failed quit attempt can be seen as a relapse outcome or as a contribution to preparing a more effective Action plan. The distinction between process and outcome, however, continues to be useful. Researchers should examine mediators and moderators of specific outcomes in order to understand how the process of change operates (Baron & Kenny, 1986; Bryk & Raudenbush, 1987; Hayes & Preacher, 2014; Longabaugh & Wirtz, 2001; Witkiewicz & Marlatt, 2007). Nevertheless, the distinction between process and outcome research should be reexamined in light of the process of change perspective proposed in this volume. Instead of a more traditional view of process research as examining the process of treatment, I would urge a focus on the personal process of change. In order to obtain a truly comprehensive picture of addiction and recovery we must examine the process of intentional behavior change instead of focusing exclusively on mechanisms of treatment or therapy relationship variables (Cooney, Babor, DiClemente, & Del Boca, 2002; DiClemente, 2006; DiClemente, Carroll, Miller, Connors, & Donovan, 2002).

The Project MATCH Research Group made a commitment to understand process of treatment and process of change as well as drinking outcomes in its evaluation of the matching hypotheses (DiClemente, Carroll, et al., 1994; Longabaugh & Wirtz, 2001). The three treatments in the study were chosen because they were different in how they conceptualized change and in the techniques used to produce change (Donovan et al., 1994). These differences were confirmed when objective observers rated session tapes and found significant differences in the activities of therapists consistent with the specific treatment philosophies (Carroll et al., 1998). However, when delivered responsibly and competently in outpatient and aftercare settings, these three different treatments produced similar outcomes (Project MATCH Research Group, 1997a, 1997b,

1998a, 1998b). More relevant for our discussion of the process of change is that all three of these treatments interacted with process variables of self-efficacy, behavioral processes of change, and stage of change in exactly the same manner (DiClemente, Carbonari, Zweben, et al., 2001; DiClemente, Carbonari, Daniels, et al., 2001; DiClemente et al., 2002). Moreover, as individuals made changes in their drinking, there were accompanying changes in reported stage-related attitudes and behaviors. Those who were successful in moving into recovery endorsed at the end of treatment greater commitment to stop drinking, less struggling with relapse, higher levels of self-efficacy, and more use of behavioral processes of change (Carbonari & DiClemente, 2000). Process dimensions rather than treatment type were related to the specific outcomes of frequency and intensity of drinking and ultimately to recovery as far out as 3 years after treatment (Project MATCH Research Group, 1998a).

In creating the more than 20 matching hypotheses tested in this trial, the researchers made a commitment to a process analysis to examine change dimensions and treatment mechanisms. Hypothesis teams were required to specify the mechanisms of action as well as types of matches that would produce optimal outcomes (Longabaugh & Wirtz, 2001). In most cases not only were the hypothesized matching outcomes not supported, but also there was little evidence to support the mechanisms and mediators assumed by investigators and the literature to be the causal mechanisms that would create the matching of client characteristic and treatment. In reviewing the evaluations of the causal chains hypothesized by the teams, Longabaugh and Wirtz (2001) concluded that our understanding of the mechanisms of action for various treatments is still rather primitive and that we do not understand how treatments and their interactions with clients succeed or fail. Many of the more stable characteristics of clients were not very predictive of drinking outcomes and did not interact with the treatments as hypothesized. However, they noted in the final chapter of the causal chain monograph that the dimensions of change related to the process of change were consistently and logically related to outcomes and served as interim markers of long-term recovery (Carbonari & DiClemente, 2000; Project MATCH Research Group, 1998a; Longabaugh & Wirtz, 2001).

One clear implication of these findings from Project MATCH is that, in order to be able to understand program effectiveness and addiction outcomes, researchers must focus on the dimensions of the change process as well as the outcomes, intervention programs, or strategies of interest. Such a focus could enable the field to patch together views of the process of change from different studies and examine how interventions and programs interact with the process of addiction and recovery.

In order to advance the understanding of addiction and recovery, every study should include enough information to be able to compare samples of participants on some basic dimensions of change and not simply on demographic or addiction severity variables. Every study should try to include some interim measures of the dimensions of change and attempt to obtain important process assessments for at least three time points in order to be able to evaluate changes over time. Finally, every study of prevention and intervention activities should be required to offer a causal chain that explains the reasoning of the researchers and include measures to accomplish an analysis of the hypothesized causal chain.

POLICY RESEARCH

Societies and governments are rightfully concerned about addictive behaviors. For the most part, however, they have used moral, legal, and medical models with which to view and attack the problem (Donovan & Marlatt, 1988). A process of change perspective and the TTM of intentional behavior change in particular offer real advantages over these other models as a framework for developing and evaluating policy strategies to reduce initiation and to promote sustained cessation.

A suggestion that emanates from this addiction and change analysis is to examine current and proposed policies and social engineering strategies for each addictive behavior to see exactly where in the process of change they would have beneficial or detrimental effect. Ideally, this exercise could be accomplished while suspending judgments about the morality and legality of each addictive behavior, at least for the duration of the exercise. Legality and morality concerns often cloud our ability to look across addictive behaviors to get an overall view of strategies and policies. This is particularly evident with the changing views and laws related to marijuana, where there is a confused mix of views and approaches to addressing the harms and the benefits of marijuana and its constituent chemicals (Volkow, Baler, Compton, & Weiss, 2014). Of course, legality and illegality are critical dimensions and ultimately must be considered. However, part of the problem with our strategies and policies to manage addictive behaviors has been the inconsistencies and anomalies created because of distinctions based on legality. For example, the punishments meted out for crack cocaine versus powdered cocaine have led to dramatic disparities in imprisonment, especially for African Americans (Palamari, Davies, Ompad, Cleland, & Weitzman, 2015). Moreover, these distinctions have influenced policy research and restricted the types of questions that are examined. In order to adequately evaluate the value of their laws and strategies, policymakers

need to examine their efforts to regulate and control all addictive behaviors, including alcohol, nicotine, marijuana, heroin, cocaine, prescription drugs, and gambling without blinders imposed by the restriction that this one is legal, this one illegal. Simplistic solutions are part of the problem.

Conflicts of interest and mixed messages are abundant in our societal policies and laws with regard to many different addictive behaviors. An editorial piece on the tobacco settlement in the 1990s published in the *Baltimore Sun* by cartoonist and satirist Dave Barry illustrates the problem. He pointed out that because of the proposed settlement between the tobacco companies and the United States, tobacco companies would now have to admit that they produce a product that kills people and that from now on they could do this only under the watchful eye of the U.S. Food and Drug Administration. Moreover, the tobacco companies would have to pay large settlements to the lawyers and the government that would come from the profits they made from continuing to sell these products to people in our country and throughout the world. On the other hand, the government would continue to subsidize farmers who grow tobacco and receive large sums of revenues from the taxes on the sale of tobacco products.

Policy confusion and conflicts also abound with regard to alcohol consumption and gambling behavior. Governments are in the business of regulating and promoting, restricting and providing access to these behaviors all at the same time. Liquor licenses and alcohol taxes provide important sources of revenue and an ability to control the sale and distribution of alcohol. Gambling provides the most recent example of the multiple roles of government with regard to an addictive behavior. Lottery officials in Maryland were criticized for going to shopping malls where senior citizens were walking and demonstrating to them how easy it was to play the lottery. State lotteries often entice individuals to play in order to gain revenue for worthwhile projects in education, child care, and the like. In fact, most lotteries were marketed to the citizens of the states that adopted them as means of gaining revenue for important social agendas. This is done with the knowledge that such access would increase the numbers of addicted gamblers. In some states, enlightened legislators recognizing both sides of the coin have dedicated a percentage of the revenue for a hotline and treatment referral service for problem gamblers (www.mdproblemgambling.com). These policies with their inherent contradictions play an important role in the attempts by societies to manage addictive behaviors and pose great difficulties for policy researchers seeking to examine the impact of any single policy.

Conflicted societal and government relationships with each of the addictive behaviors can influence the initiation and maintenance of the

problematic behaviors and affect the process of recovery. Acknowledging the conflicted and multiple relationships would mark the beginning of society emerging from a Precontemplation stage with regard to changing practices to reflect a more thoughtful and coordinated set of strategies and policies. Leaders must consider the pros and cons of each strategy they propose. For every proposed policy related to addictive behaviors, legislative staffers should be required to develop a list of potentially positive and negative influences on the process of addiction and recovery. This decision-making list should be presented to the lawmakers and discussed in the development of any policy. Action plans should be tested out in various settings and evaluated for their impact on engagement or recovery. There are a number of pilot programs that are launched, but the decision to implement them on a large scale often does not wait until the analysis of all outcomes is completed. This evaluation and implementation process will take time and energy, but it is critical to developing sane and successful addiction control strategies. Policymakers will have to work through the tasks of Contemplation and Preparation before taking Action. They will have to curb desires to provide a quick fix or to respond reflexively to a particular event. The notion that whatever is done in good faith cannot be harmful is misguided. Every strategy and policy has the potential to increase and to decrease the frequency of engagement in addictive behaviors as well as the pain and suffering that result from them. Only information generated through research and program evaluations that address key questions about the effects on initiation and recovery can effectively guide policymakers.

What follows is one example of a policy analysis on the medical use of marijuana that evaluates the impact of such a policy from a process of change perspective. Such an analysis generates clearly researchable questions that could guide the formation and implementation of policy on medical marijuana. Fortunately, some of this research is underway because of the legalization of medical and recreational marijuana in several states. These natural experiments, although lacking important scientific controls, could help resolve some of the following questions. However, restrictions on the access to research marijuana and the conflicts between state and federal laws make this research very difficult.

The issue facing policymakers is whether to legalize the smoking of marijuana for the relief of nausea and other symptoms of pain and discomfort related to chronic administration of cancer medications or treatment of other chronic conditions. Proponents believe that this is a humane act with little or no impact on the drug abuse problem. Critics argue that this is simply a foot-in-the-door strategy to promote the argument for legalization of marijuana use in this country. Although some states have already chosen legalization of medical use and even

recreational use, the following analysis focuses on how these policies could affect engagement in or recovery from an addictive behavior.

An Impact Analysis on Engagement

Allowing or not allowing medical use of marijuana raises many questions about how each of these options would influence the process of becoming addicted. Will viewing marijuana as a medicine increase its attractiveness to the young adolescent or adult in the Precontemplation or Contemplation stage with regard to marijuana use? Does medical use legitimize its use in other situations? Although some initial epidemiological data do indicate that risk of marijuana use did not differ after passing legalization of medical marijuana, adolescent use does seem higher in states that passed these laws (Hasin et al., 2015). On the other hand, banning medical use when there are scientific and popular reports of benefits can be viewed as overreaching by a significant segment of the population. Will this perception foster a lack of credibility in policy or policymakers that can set the stage for some rebellious backlash in attitudes about marijuana use? Is medical marijuana destined to produce a use disorder that extends across the individual's lifestyle and creates an addiction? What are the consequences of this dependence, if medical marijuana is legal or if it is illegal? Will dependence that is created by medical use influence positively or negatively personal or social consequences? Can individuals who will use marijuana medicinally keep its use under self-regulatory, situational control? What impact would use of marijuana by the patient have on other peers, family members, or acquaintances in terms of their potential for moving through the stages of initiation of marijuana use? If we make medical use illegal, will we be able to enforce this ban especially since many sister states may have legalized use? Will we create a legal or black market in marijuana for medical purposes that would create an industry dedicated to increasing use? Can we regulate the distribution of the substance and create a legal but limited access that would be limited to medical use? These same questions are relevant for the current controversy over electronic cigarettes and other forms of less harmful nicotine delivery systems (U.S. Department of Health and Human Services, 2016a; *e-Cigarettes.SurgeonGeneral.gov*). Answers to these questions could enlighten policymakers to the risks and benefits of such a policy on the stages of addiction.

An Impact Analysis on Recovery

A similar set of questions could evaluate the impact of such a policy on individuals in various recovery stages. Would individuals using medical

marijuana become physically and psychologically dependent on the drug and considered addicted? How easily can they stop after medical use is no longer appropriate? Do we have many cases of individuals who have used medical marijuana for a time then quit and remained drug-free for long periods of time? Will it make a difference if they have a history of prior use of marijuana or other drugs? What are comparable policies related to other addictive behaviors? In the United States many individuals are legally prescribed mood- and mind-altering drugs with dependence potential for long periods of time. Would medical marijuana be most like methadone maintenance treatment that involves chronic administration of a psychoactive substance to avoid the physical and social consequences of heroin addiction? Or would it be more similar to prescription narcotics that are prescribed for pain on a short- or long-term basis regardless of the addiction potential and that seem to cause little long-term addiction when used specifically for pain (Fishbain, Cole, Lewis, Rosomoff, & Rosomoff, 2008; Stine & Kosten, 1999)? Current estimates of risk for long-term addiction evaluated in a meta-analysis, however, vary by study and range from 1 to 81% (Vowles et al., 2015). Or would medical marijuana be more like nicotine products, like Nicorette gum and the nicotine patch, that are now available over the counter? How would medical marijuana affect those who are already addicted to one or another addictive behavior (Cohn et al., 2015)? Would prescription of this medical marijuana be contraindicated for individuals who have a history of drug abuse or dependence or who have a history of abusing marijuana?

Objective, research-based answers to these questions can provide an estimate of the impact of any specific policy change on the initiation of marijuana dependence as well as on the process of recovery from addiction to marijuana. The answers to these questions also offer ideas on how to make and implement a policy that would decrease the potential for any unwanted increase in the initiation of marijuana use among others in the immediate and larger environment. For example, just calling it medical marijuana may clarify differences with the illegal street versions. Offering indications and counterindications for prescribing this medical regimen could possibly regulate some use without making all use illegal. On the other hand, continuing to criminalize a use for which there are potentially documented medical benefits could undermine the credibility and impact of prevention efforts.

A comprehensive impact assessment of this type from the perspective of addiction and change could offer useful guidance to policymakers and replace heated exchanges of opinions with enlightened debates about the impact of the policy. What is needed is a research agenda that can inform the decisions. Understanding the policy impact on the naïve

nonuser or novice marijuana user and the process of initiation as well as on the addicted marijuana user and the process of recovery could also indicate how to implement it in a way that would maximize utility and minimize harm. Similar impact analyses and research strategies could be done for policies related to other addictive behaviors such as casino gambling, e-cigarettes, lotteries, college drinking, changing the drinking age, lowering illegal blood alcohol concentrations, or managing synthetic versions of various substances.

SPECIAL TOPICS

Cultural Competence

How do ethnic and cultural differences affect the process of change in addiction and recovery? This is an interesting question that requires a complex answer informed by sensitive and sensible research. The first question that must be answered is whether there are unique factors or aspects of specific cultures or subgroups that would invalidate the application of the stages, processes, or markers of change of the TTM. For example, it is clear that there are biological and sociological risk and protective factors unique to certain ethnic subgroups. Asians have a genetic flushing response to exposure to alcohol that could have a protective effect (Segal, 1992). Alaskan and Native Americans have both biological/genetic and sociological factors that are also specific to their engagement in drinking (Castro et al., 1999; Reback, 1992; Walker et al., 1996). These risk and protective factors constitute unique cultural elements that can retard or promote movement forward through the stages of Precontemplation, Contemplation, and Preparation for alcohol consumption. Although important, these factors do not appear to necessitate a separate model of change for African Americans, Europeans, Australians, Asians, or Native Americans because the TTM is being used with these populations (Center for Substance Abuse Treatment, 1999; Griffin, Gilliland, Perez, Helitzer, & Carter, 1999; Grothues et al., 2005; Heather et al., 2009; Korcha et al., 2012; Schorling, 1995).

Other questions that could invalidate the cross-cultural application of this intentional behavior change model concern the assumptions of the model and whether these assumptions would be applicable across ethnic or cultural subgroups. For example, a colleague who was discussing implementing a motivational interviewing and stages-of-change smoking cessation project in China suggested that the Chinese doctors she encountered seemed to have little difficulty understanding and using the concept of stages of smoking cessation but balked at the emphasis on patient responsibility and choice contained in the motivational

interviewing perspective. It seems the doctors believed patients should simply comply with their advice. The doctors were reluctant to spend time discussing decision making and barriers to change with the client. The strong emphasis on authority and familial decision making in contrast to personal decision making in some societies and subcultures certainly challenges an intentional process of change. However, even in these cultures personal choice seems to play a significant role in the change process. Certainly, cultural differences in viewing the role of authority figures and ancestral influences would require a sophisticated understanding of how intentional behavior change operates in that society.

Nevertheless, there does not appear to be a society or subgroup where intentional change and personal decision making are completely inoperative. For individuals becoming addicted or recovering in more traditional cultures the societal and family systems in their context of change would be particularly salient. Research on these cultural dimensions and what they mean for the process of change is just beginning. However, at this point it seems that although the importance of social and familial influences on the decision-making process would have to be evaluated to address cultural influences, most cultures and subcultures would not necessitate a separate model of change. The possible exception might be repressive societies or populations in incarcerated settings, where there is little or no choice and behavior change is imposed by force and punishment. Even in this case, the problem would be the lack of opportunity for intentional in contrast to imposed change rather than the inappropriateness of an intentional change model.

Cultural competence would require adaptation in the dimensions of change rather than a complete rethinking of the process of change. There is growing support for using this model of addictive behavior change in many different countries around the world. The stages of change, in particular, have been successfully adapted to be used in Australia, Brazil, Canada, China, Germany, Great Britain, Greece, Ireland, Italy, Japan, Korea, the Netherlands, New Zealand, South America, Spain, Switzerland, and other countries (Etter, Perneger, & Ronchi, 1997; Freyer-Adam et al., 2014; Keller, Nigg, Jakle, Baum, & Basler, 1999; Kohler et al., 1999; Miller & Heather, 1998; Schmid & Gmel, 1999; Weinstein et al., 1998). Although much of the research on the model to date has been conducted in English-speaking populations, there are numerous addiction programs and research projects based on the model in Brazil, China, Germany, Greece, Italy, the Netherlands, Norway, Spain, and other countries.

My experiences and reading in the area of cultural influences lead me to the conclusion that the basic dimensions of change and the view of

the process of change offered by the TTM are compatible with different cultural perspectives. Intentional behavior change is an important element that contributes to becoming addicted or to moving into recovery no matter what the culture or ethnic group. However, there are important differences that should be taken into account as one attempts to apply the model to specific subgroups. These subgroups could be classified according to religion, country of origin, gender, ethnic background, or cultural identity. There may be important differences that affect the process of change even among individuals within the similar ethnic or language subgroups (e.g., Hispanics who come from Mexico and those who come from Puerto Rico). However, examining cross-cultural decision making, the processes of change, self-efficacy, and the stages of change to determine empirically whether and how much adaptation is needed could provide information about differences among subgroups and subcultures. Cultural adaptations of the TTM of intentional behavior change in addictions, in fact, can provide a rich source of conceptual and clinical questions to advance our understanding of the process of change and of what it means to be culturally competent.

There are some obvious areas of adaptation that should be examined in every culture or subgroup where the model is applied. The marker of decisional balance should be evaluated to make sure that it contains the considerations and situations that reflect subgroup differences. Finding the value system and culturally relevant influences that promote movement from Precontemplation to Contemplation involves examining the cultural background and learning history of the individual and his or her social group. First-generation immigrants would differ from fifth-generation landowners, African Americans from Hispanics. The value system that the individual brings to the Contemplation stage is critical in decision making. How the behavior fits in or is discrepant with the cultural origins and upbringing of the individual can make a big difference in whether the individual adopts or stops the behavior (Carlson, 2006).

Understanding cultural and subgroup influences and values can also be helpful in creating experiences and developing techniques that can successfully engage the cognitive/experiential and behavioral processes of change needed to move through the stages. Engaging self-reevaluation and environmental reevaluation requires approaches and conversations that are personally relevant and culturally sophisticated. Engaging emotional arousal/dramatic relief and social liberation involves understanding the value of emotions and the relevant social norms in the culture. Longshore, Grills, and Annon (1999) developed an innovative treatment engagement research project for Los Angeles drug-addicted African American youth that incorporated a solid understanding of African

American cultural roots. Their treatment entry strategy used two counselors, because a one-to-one counseling setting was not as culturally appropriate, and a location where they could cook food and discuss the client's addiction problem in the context of a meal. This program was more successful in engaging clients in terms of stage movement and treatment entry when compared with a traditional triage system of engagement and referral (Longshore et al., 1999). There are also interesting anecdotes of how counselors use cultural considerations to engage addicted individuals in the process of change. Other reported cultural adaptations are Native American counselors using sweat lodges in their treatments to engage and move their clients through the stages and Hispanic counselors focusing on family-of-origin issues in promoting reasons for recovery (Center for Substance Abuse Treatment, 1999, p. 85).

Cultural competence also includes avoiding some problematic techniques that do not fit with a client's culture. For example, a highly affect-laden approach where counselors or clients hug or touch each other would be problematic for many Asian clients, whose sense of personal space and appropriate distance could be violated in such a setting. Finding and using messages and techniques that sensitively engage cognitive/experiential processes of change while respecting the values and cultural practices of clients is a critical component for cultural competence.

In a similar manner, it is important to understand the environment, social network, and social systems that exist in subcultures and groups in order to effectively engage behavioral processes of change and to comprehend the context of change. There are practices and rituals among subcultures that could influence the processes of reinforcement management, helping relationship, and self-liberation as well as the conditioning processes of stimulus control and counterconditioning. Assertiveness training, group treatment, and self-help groups may not be appropriate or effective in cultures that value self-effacement and privacy. There may be culturally sensitive ways to teach relaxation using either Eastern or Western techniques. There may be specific important individuals from whom praise and reinforcement would be particularly potent. Understanding the social environment could also help create efficacy probes that would include situations and scenarios unique to the client from a certain subculture. Similarly, knowledge of the culture of any particular majority or minority group would help intervenors in understanding unique problems or issues that could arise in the various areas of functioning in the context of change (Carlson, 2006).

Cultural competence in promoting the process of change requires an understanding of the values, practices, social influences, and social structure of a subgroup in order to be able to engage the appropriate

processes of change, to understand the client's perspective in his or her decisional considerations, and to assist in restructuring the environment. Understanding cultural and ethnic customs and practices can help researchers, counselors, and program developers to avoid labeling as pathological cultural practices which are acceptable in that subculture and which help them problem solve issues that arise in the context of change. Similarly, stigma related to substance abuse and other addictive behaviors has cultural roots and influences. Understanding stigma and its influence requires cultural awareness. Ultimately, the individual moving through the stages of addiction or recovery must comprehend and integrate the relevant cultural considerations and influences into his or her process of change. The challenge for the counselor and the researcher is to find out for whom and how particular cultural influences and factors play a role in the process of change (O'Connor et al., 1996). Then they can adjust their efforts to more effectively incorporate cultural considerations in their research and interventions to prevent or promote movement through the stages of change for addiction or recovery.

Medications and Pharmacological Interventions

A significant amount of effort and energy is being dedicated to developing medications that can help individuals to stop using substances or quit addictive behaviors (Barber & O'Brien, 1999; Wilcox & Bogenschutz, 2013). There are several types of pharmacological aids. Some medications try to block the effect of the substance use or addictive behavior so there is no high and less pleasure generated by it (naltrexone, ondansetron, acamprosate). Other pharmacological agents try to substitute a less problematic substance or delivery system for the addictive behavior or substance (nicotine replacement, e-cigarettes, buprenorphine, methadone). Some substances are used to create negative reactions when combined with the drug in order to promote abstinence and discourage relapse (disulfiram or Antabuse). Finally, there are medications to treat associated conditions or to relieve the distress of withdrawal effects and alternative herbal treatments that have been used to cleanse the body of toxins related to substance abuse (Breslin, Reed, & Malone, 2003; Lu et al., 2009).

One of the interesting, poorly researched issues in the field of addiction treatment is how these medications interact with the process of change. Discussions of medication effects often concentrate on the biological mechanisms that are affected by the medication or pharmacological agent and how these are related to the biological actions of cocaine, heroin, or alcohol (Allen & Litten, 1999; Wilcox & Bogenschutz, 2013).

Most medications are tested in efficacy trials using a backdrop of a psychosocial intervention as well as the medication. The efficacy of nicotine substitutes, for example, has been tested with a behavioral change package given to the participants. Medications to manage alcohol and drug cravings have been examined, usually in combination with a cognitive-behavioral group treatment (Anton et al., 2006; Johnson et al., 2000) or a brief motivational intervention (Volpicelli, Pettinati, McClellan, & O'Brien, 2001). Participants given placebos also receive the psychosocial intervention so that, for the medication to be approved, the active medication effect must exceed that of placebo and psychosocial treatment (Weiss, O'Malley, Hosking, Locastro, & Swift, 2008). However, little is done to separate out the effects due to either the placebo or the medication from the effects of the psychosocial treatments. Even less research is focused on how the medications affect the personal process of change. Thus there is little understanding of how psychosocial treatments interact with pharmacological agents in terms of compliance with dosage and the research protocol or in terms of movement through the process of change (Beitman et al., 1994; DiClemente & Scott, 1997). This seems to be particularly important because recent evidence indicates that placebos may produce effects through sometimes similar, sometimes dissimilar neurological mechanisms in the brain (Holden, 2002; Mayberg et al., 2002).

The evidence is growing to support the notion that placebos and psychosocial treatments as well as other psychological change mechanisms (decision making; commitment) affect neurological mechanisms in the brain (Martinez et al., 2011; Sinha, 2011; Sinha, Garcia, Paliwal, Kreek, & Rounsaville, 2006; Wager et al., 2004). Motivation and commitment are important mechanisms even in medication trials (DeMartini et al., 2014; Penberthy et al., 2007, 2011). Research that does not examine motivation and other psychosocial variables and mechanisms of change along with medication effects will not yield a comprehensive view of how medications work to support the process of sustained behavior change. We are doing more to match medications to genetic markers than we are to connect medications effects to behavior change processes (Johnson et al., 2011).

Using medications and other agents to counter substance abuse offers a unique opportunity to examine many interesting questions about the process of behavior change and how these agents interact with the intentional process of behavior change. One central question that can be addressed is that of intrinsic and extrinsic motivation and how they interact (DiClemente, Bellino, & Neavins, 1999; Ryan & Deci, 2000; Vallerand, 1997). Many individuals who seek pharmacotherapy for their addiction are looking for an external aid that can make them

stop smoking, drinking, or drugging. Some are really expecting a miracle despite warnings against such expectations from the prescribing professionals. Thus medication can interfere with the process of intentional behavior change if it is viewed as an extrinsic agent that will make the change for the individual, circumventing the need for personal motivation instead of as an aid and part of a more comprehensive addictive behavior change plan.

Medications can have a variable impact on the process of change. They can undermine or inflate self-efficacy; enable individuals to begin to make a change without a decisional balance sufficient to support sustained, postmedication change; or discourage use of essential behavioral processes of change. On the other hand, medications can play a significant role in helping clients achieve successful recovery by decreasing temptation to use, supporting stimulus control by helping them avoid cues or by decreasing cues to drink or drug, providing enhanced counterconditioning effects by reducing stress and negative emotions, and offering an individual short-term support that enable clients to increase confidence to abstain and allow the time to establish alternate reinforcers that can support long-term change. How medications interact with movement through the stages for each individual poses intriguing questions that demand more sophisticated research designs that can examine these potential interactions.

Existing research on the effectiveness of medication does provide some clues to figuring out the interactions between medications and intentional behavior change. Compliance with medication is a critical indicator of success in pharmacological trials and is related to motivation and making a commitment to a plan of change (Monti, Rohsenhow, et al., 2001). Many medication trials are brief (3–4 months) and measure outcomes primarily during the time of active dosing of the medication. Thus they examine mostly Action effects and not the effects of the medication on Maintenance. This is particularly true for those medications not designed to be substitutes for the addictive behavior, like methadone. Of course, defining Action and Maintenance depends on whether continued use (methadone maintenance) or abstinence without the medication assistance is considered the end goal. Finally, many medication trials require a “wash-out” period where the individual must stop using the substance for a period of time (a few days to a week or two) before they are allowed to go on the medication in order to prevent drug interactions and side effects of such interactions (Johnson et al., 2000). However, this requires clients to demonstrate some self-control of the addictive behavior even before the medication is administered. How this “wash-out” period interacts with decision making and how it may necessitate the use of behavioral processes of change prior to the initiation of medication

would make a fascinating area of study. It may be that individuals who are able to do this are more motivated and have more intact self-control systems than many of the individuals who fail to get into these medication trials. In any case, there are significant interactions between pharmacological interventions and how they are studied and many different elements of the process of intentional behavior change.

Numerous research questions remain to be answered in this area. How does the entry stage of the individual seeking pharmacotherapy interact with future success? Is the placebo effect in drug trials simply a reflection of self-change? How does the belief that a client has a pharmacological aid to help make a change affect the change process for those who have no active medication? Although the most tempted individuals would seem to need a pharmacological aid the most, they may be the least likely to be able to be successful during the wash-out period. Many medications (like nicotine replacement and injectable naltrexone) allow the individual to begin the medication while they are drinking or smoking (O'Malley & Kosten, 2006). How does requiring or not requiring abstinence affect the process of change? What stage of change would be most appropriate for entry into a medication trial? Can we change decisional considerations with a quit attempt that is supported by medication? How does the individual who has been able to stay away from the addictive behavior with the aid of some pharmacological intervention transition into using psychosocial behavioral processes of change once the chemical aid is removed? What effects do the different types of pharmacological aids (substitutes, blockers, and negative reaction inducers) have on the process of intentional behavior change? Long-term administration of methadone substitutes dependence on one type of substance for another. What is the impact of substitution on the process of change for the targeted addictive behavior (heroin) and for other nontargeted addictive behaviors, like marijuana use? Finally, what are the best ways to integrate medication into the process of recovery and how can we create a synergy between the intentional change process and the biological effects created by the pharmacological agent? This is an exciting series of questions that should launch significant new areas of research.

Harm Reduction

Harm reduction approaches to addiction include a wide range of intervention strategies that focus on minimizing risk or harm associated with the addictive behavior and offering healthier choices to those who are engaged in an addictive behavior (MacCoun, 1998). Harm reduction efforts began initially in reaction to the AIDS epidemic and the need to reduce risky behaviors that contribute to HIV infection, like needle

sharing by drug abusers (Marlatt & Witkiewicz, 2010; E. T. Miller, Turner, & Marlatt, 2001). Advocates suggested that distributing clean needles and offering bleach and other ways to cleanse needles would prevent the spread of infections and thereby reduce harm. Harm reduction strategies, however, are widespread across addictive behaviors. Designated driver initiatives, free taxi rides home after drinking, warning addicts about tainted cocaine supplies, methadone maintenance programs, Naloxone to prevent opiate overdose deaths, e-cigarettes and attempts to create safer cigarettes, training bartenders not to serve already intoxicated patrons, and Breathalyzer-controlled ignition systems are all harm reduction programs for individuals who are actively engaged in an addictive behavior. Harm reduction prevention programs are directed at individuals who are in the earlier stages of acquisition or initiation of problematic engagement in an addictive behavior (Marlatt, Larimer, & Witkiewicz, 2011). Initiatives such as reducing risky binge drinking among college students, providing condoms in the restrooms of places where alcohol is sold, testing substances prior to use to ensure of purity, and guaranteed rides after proms and parties for students who are drinking illegally are directed at those who may be experimenting or learning how to self-manage drinking or drug use so that they will not experience irrevocable harm in the process (E. T. Miller et al., 2001; Marlatt et al., 2011).

Critics of harm reduction strategies argue that these strategies promote use and fail to preach abstinence as the best or only harm reduction strategy (MacCoun, 1998). However, as in the earlier discussion on policymaking, the real test of harm reduction strategies is how much harm they prevent and how much impact they have on the process of addiction and recovery (www.harmreductionjournal.com). Once again, legality complicates the issue. One of the biggest issues in harm reduction is that it often operates alongside laws that prohibit the addictive behavior. Although it is illegal to be served and drink alcohol if you are under age 21 in most states, offering free rides to intoxicated students who are under 21 years of age is a viable harm reduction strategy. Methadone and needle exchanges required separate laws that allow their distribution to heroin-addicted individuals. Teaching 19- and 20-year-old college students how to drink responsibly often is complicated by the legal drinking age (Baer, 1993; Baer, Marlatt, & McMahon, 1993). Nevertheless, the key questions to be addressed in the research on harm reduction strategies should focus on how these interventions interact with the process of change involved in becoming addicted and in getting into recovery.

Although there is growing evidence of the effectiveness of syringe exchange programs in reducing the incidence of STD and HIV infections

(Hurley, Jolley, & Kaldor, 1997; Marlatt & Tapert, 1993), there continue to be concerns about this type of harm reduction program. Both critics and advocates could make better arguments based on research analyzing the impact of these programs on the process of change for addiction and recovery (Bowen & Trotter, 1995; Institute of Medicine, 2001; Palmateer et al., 2010).

Similar questions arise for all “harm reduction” strategies where the mantra seems to be getting the change you can while hoping for the more significant changes that you want. Should we “let” individuals stay addicted to nicotine and use e-cigarettes or nicotine replacement indefinitely? Should we continue to provide clean needles, use methadone, buprenorphine, or Narcan for individuals who are not ready to give up opiates? These questions assume that we have the motivational techniques or the alternative policies and programs that successfully get the individual to engage in the process of attaining more significant and sustained change. Research is needed to find the strategies to minimize anticipated and unanticipated harm while promoting changes that will eliminate all harm and produce well-being and quality of life. Only then can we evaluate the true impact as well as the benefits and risks of harm reduction strategies. Even if a program of harm reduction does not move an individual forward in the process of recovery, it can be useful in light of the harm avoided if coupled with the lack of any seriously negative effects either in stopping addicts from going through the stages of recovery or in getting uninitiated individuals into problems with the addictive behavior. Moreover, it is important to note that harm reduction is not the opposite of abstinence and that abstinence is a harm reduction strategy. In fact, getting individuals to consider the harm or consequences related to their engaging in the addictive behavior can actually increase Contemplation stage activities and contribute to the reevaluation that would be needed to move forward in the stages of recovery (DiClemente, 1999a).

Comorbidity and Integrated Care

Although there are ongoing efforts to recognize the interplay among many different conditions and the contribution of lifestyle behaviors to morbidity and mortality, the health care system continues to segment and segregate mental health, addictive behaviors, primary care, and specialty care in silos separated by funding streams, research focus, lack of training, and societal stigma. The ongoing dilemma created by this monovision provider system is that individuals who have mental health-related conditions and addiction disorders and those who have HIV or

diabetes and serious use disorders have difficulty finding comprehensive services and pose problems for providers. However, comorbidity (i.e., the existence of two or more diagnosable problems) is not a new phenomenon. Individuals with addictions often have multiple serious problems in addition to the addiction. Some of these are diagnosable as medical problems and others as mental health problems that range from anxiety and depression to schizophrenia and bipolar disorder to posttraumatic stress and sociopathic or other personality disorders (American Psychiatric Association, 2013; Rosenberg et al., 2001; Rosenthal & Westreich, 1999).

The solution lies in the development of an integrated care health care system reflected in the SAMHSA-HRSA (Substance Abuse and Mental Health Services Administration–Health Resources and Services Administration) integrated care initiative (Heath, Wise Romero, & Reynolds, 2013). Their description of the problem and the solutions is as follows:

People with mental and substance abuse disorders may die decades earlier than the average person—mostly from untreated and preventable chronic illnesses like hypertension, diabetes, obesity, and cardiovascular disease that are aggravated by poor health habits such as inadequate physical activity, poor nutrition, smoking, and substance abuse. Barriers to primary care—coupled with challenges in navigating complex healthcare systems—have been a major obstacle to care.

At the same time, primary care settings have become the gateway to the behavioral health system, and primary care providers need support and resources to screen and treat individuals with behavioral and general healthcare needs.

The solution lies in integrated care, the systematic coordination of general and behavioral healthcare. Integrating mental health, substance abuse, and primary care services produces the best outcomes and proves the most effective approach to caring for people with multiple healthcare needs. (SAMHSA-HRSA Center for Integrated Health Solutions, n.d.)

The problem of comorbidity, particularly for mental health and substance abuse, has been institutionalized in the current term of *dual diagnosis*. However, dual diagnosis is only a label created in order to alert treatment systems that at least two problems need attention and that coordinated care is needed. The reality is that many individuals with multiple problems at clinical or preclinical levels that span the areas of addictive behaviors and mental health are often shifted among providers and agencies and care is not integrated or even well-coordinated. I had the opportunity recently to interview several families and their dually diagnosed children. The horror stories about lack of proper and

integrated care, individuals being ejected from treatment programs, the nightmare of finding coverage for treatment, the continuous relapsing, and involvement of police and criminal justice systems were heartbreaking signs of a fractured and problematic system of care. The plight of the multiply diagnosed individual and their families offers important and researchable questions about the process of change involved in addiction and recovery.

Mental health problems are a recognizable risk factor involved in the process of becoming addicted (Drake et al., 2001; Rosenthal & Westreich, 1999). The psychotropic effects of drugs and alcohol provide significant reinforcing effects, particularly for people troubled by anxiety, depression, fears, mania, and psychosis. Distressed individuals suffering from these conditions learn to abuse substances more quickly and have fewer protective factors and resources to support self-regulation. These emotional and psychological conditions can affect the process of change by influencing decisional considerations, interfering with cognitive/experiential and behavioral processes of change, undermining self-efficacy, and increasing temptations to engage in the addictive behavior. How this vulnerability operates to move individuals forward through the stages of addiction is the key to understanding the high comorbidity prevalence of addiction in the mentally ill (Drake et al., 2004; Regier et al., 1990).

On the other hand, addictive behaviors can trigger or contribute to the development of psychiatric disorders. Psychotropic substances create altered brain and mood states that most often are ephemeral and last only as long as the drug's biologically active life. However, at times drug effects can trigger severe reactions that last well beyond the drug-taking incident. Many initial psychotic breaks in individuals who later become diagnosed with schizophrenia or bipolar disorder co-occur with drug or alcohol use, although it is not always clear whether drug use simply provided an occasion or was a contributory cause to the psychotic symptoms and emerging mental illness (Mueser et al., 1992; Rach-Beisel, Scott, & Dixon, 1999). The interplay between mental illness and addiction is complicated and reciprocal. The interaction is best understood in light of the process of becoming addicted in order to tease apart effects of decision making, impaired judgment, behavioral engagement, progression to addiction, and how these interacting problems sustain each other.

Once an individual has become addicted and has a serious mental illness, the challenge becomes one of trying to see how to engage the process of recovery for the two chronic conditions of addiction and mental illness. The TTM views the process of recovery from both types

of problems as similar but now inexorably linked because of the interactive influences. The mental illness may require continual medication management and compliance with medication as well as other behavior changes as the target of the change process (Prochaska & DiClemente, 1984). However, the dually diagnosed individual would have to access the intentional process of behavior change in order to manage the mental illness as well as to recover from addiction (DiClemente et al., 2008; DiClemente, Schumann, Greene, & Earley, 2011; Ziedonis & Trudeau, 1997). Some concerns have been raised as to whether individuals with serious mental illness can access the intentional process of change in order to move into recovery from the addiction (Bellack & DiClemente, 1999). Research is needed to determine the extent to which the process of change is similar across the different domains of problems presented by dually diagnosed individuals.

Some of the initial research in this area supports the existence of an intentional process of change among dually diagnosed individuals with alcohol and drug problems. Velasquez and colleagues (1999) found that psychiatric symptoms interacted with the change dimensions of the TTM. Specifically, psychiatric severity increased temptation to drink and reduced behavioral coping among a sample of dually diagnosable individuals. Moreover, the dimensions of change focused on their drinking problems demonstrated interrelationships that paralleled those found with other, non-dually diagnosed alcohol-abusing and -dependent populations. Hagedorn's study (2000) examined decisional considerations related to alcohol abuse in a dually diagnosed sample of individuals with chronic schizophrenia and alcohol problems. She replicated the structure of the alcohol decisional balance scale and found that, although there are some unique pro and con considerations for dually diagnosed populations, the basic elements of decision making were similar in structure and relationship with other change dimensions to that found in other samples of alcohol abusers. Researchers have examined this process of change for individuals who are dually diagnosed with schizophrenia and cocaine abuse and comparing them with individuals who have a chronic, non-schizophrenia, serious mental illness and cocaine abuse. Initial results support the use of this intentional process of addictive behavior change even among these dually diagnosed individuals (Bellack, Gearon, & DiClemente, 2001; Bennett, Bellack, Brown & DiClemente, 2009). Clearly, the intentional behavior change process is significantly disrupted when there is an active psychotic episode. However, when psychotic symptoms are managed and under some control, the change process for recovery from addiction appears to be operative and the change dimensions of the TTM to be relevant.

Additional research is needed to understand the interplay between the problems of dually diagnosed individuals as well as to tease apart the interactions between addictive behaviors and mental illness involved in the addiction and recovery process. A vignette that appeared in the "Consumer's Corner" (2001, pp. 26–27) described the experience of an individual who achieved abstinence from alcohol and drugs for more than 13 years. However, during that time he continued to be in Pre-contemplation for change with regard to his mental illness. Only after several divorces and other problems that occurred while he remained abstinent from alcohol and drugs did he acknowledge that the addiction was not the only problem and that his manic-depression was a problem that needed to be addressed. Individuals can be in different stages for each disorder. Successfully maintained change in one problem area does not necessarily guarantee readiness to change another.

Dually diagnosed individuals bring clearly into focus how multiple problems and the context of change can influence the process of recovery from addiction. Most often, dually diagnosed individuals have multiple problems that have different behavior change targets and need different types of interventions. Integrative screening and integrated care across multiple health care specialties and behavior change specialists are critical for creating a system that can meet the needs of individuals with addictive behavior problems in addition to physical and mental health conditions. Comprehensive support and systemic integration as well as aggressive case management that continues over long periods of time seems to be the only effective strategy to manage multiple problems that require effective action in order to move the individuals forward to successful behavior change on multiple fronts (Drake, Mueser, & Brunette, 2007; Higgins, 1999; Minkoff, 1989; Osher & Kofoed, 1989).

A FINAL NOTE ABOUT RESEARCH

The universal nature of the intentional behavior change process helps the clinician and researcher to avoid a myopic focus on a single addictive behavior and a quixotic search for a separate change process for every problem. The important dimensions of change outlined in the TTM provide the tools with which to examine the process of intentional behavior change. This process can help us to understand the pathways into and out of addictions and offers a framework for the development and design of research that can sensitively explore the phenomena of addiction and change. In addition, the specificity and generalizability of the change dimensions provide a way to focus on specific behavioral changes without losing a more holistic perspective. Research on addictions should

respect both the specificity of the behavior change and the universality of the change process. The TTM and the intentional behavior change process offer a unique perspective that can enrich outcome and process research, program evaluation, and policy research. Moreover, current critical issues in the field of addictions, like cultural competence, dual diagnosis, harm reduction, and pharmacotherapy could benefit from research that is sensitive to this process of change and incorporates change dimensions of the TTM. Although this model has been in existence for 30 years, its application to the process of addiction and recovery continues to offer new insights and yield important new information about addiction and change.

CHAPTER 13



Creating a Comprehensive Approach to Understanding Addiction

Both microscope and telescope are needed to gain close-up and wide-angle views of the biobehavioral mechanisms and contextual influences that create the journey of addiction and recovery.

Addiction treatment and research is at a crossroads. The wonderful and exciting advances in neuroscience have uncovered structural and functional elements in the brain that are critical to a more comprehensive understanding of the initial, short-term, and long-term effects of addictive behaviors on the developing brain (Brown et al., 2015; Childress, McElgin, Mozley, Reivich, & O'Brien, 1996; Koob & Le Moal, 2008; Volkow et al., 2016). Progress in the field of genetics has enhanced our understanding of the multidimensional influence of genes on initiation and maintenance of addictions while, at the same time, highlighting the importance of nurture and environment (McGue & Irons, 2013). Spurred by these developments in both neuroscience and genetics, the search for medications and vaccines to interfere with the initiation and assist with cessation or moderation of addictive behaviors has intensified, becoming an important focus in both NIAAA and NIDA research portfolios and strategic plans. Advances in motivational, behavioral, and psychosocial interventions have stimulated growth in brief interventions like Screening, Brief Intervention, and Referral to Treatment (SBIRT), as well as more integrative approaches to addiction treatment. Psychosocial treatments and medications are being combined (Anton et al., 2006) and delivered using new technologies (Riley, Serrano, Nilsen, & Atienza,

2015). Exciting new research is beginning to connect functional brain imaging with psychosocial variables and change mechanisms (Bickel et al., 2014; Sinha, 2011; Wesley et al., 2014). The search for integrative care, holistic treatment, and precision medicine represent important new directions but bring with them an overwhelming level of complexity and multidimensionality. The challenge is how to make all these advances useful for individuals suffering from addictions, avoid divisive and isolating silos, and encourage integrative perspectives that will connect the dots among these exciting areas of advancing science.

The perspective of *Addiction and Change* offers several important principles that can contribute to avoiding oversimplification, promoting integration, and managing complexity in the field of addiction treatment and research. The first is always to remember that at the heart of every addiction is the journey of an individual into and out of this complex, self-sustaining biobehavioral condition. The addictions field has often focused on end points and lacked a conceptual framework that conveys how each part of this journey is interconnected. We must continue to connect findings to the realities facing individuals on these journeys and to the tremendous personal and societal cost of addictions. The second is to connect basic and clinical research to the initiation and recovery process. This process of change perspective provides a comprehensive view of the personal journey and can make research accessible to intervention and prevention professionals. There is great value in basic research and understanding core mechanisms related to addictions using biochemistry, animal models, genetics, and neuroscience. However, we must keep in mind how these findings are connected with one another and the process of initiation and recovery and relevant to reducing risks and promoting wellness. Third, use telescopes as well as microscopes when examining addictions. We must be able to integrate the microscopic view of cellular and brain mechanisms with a macro view of addictions embedded in family, peer, and societal systems; social policies; cultural and moral perspectives; and our human search for innovative and new experiences. Finally, using a process of change perspective—examining how our findings relate to the process of initiating, modifying, or stopping an addiction—can help provide order and integration for seemingly unconnected scientific discoveries from across the field. This integration, in turn, allows us to apply findings across multiple domains, including prevention, clinical practice, public health, criminal justice, and others.

Currently, much energy in our field is dedicated to controversies over whether addictions are brain or behavior disorders, are determined by genetics or upbringing, are driven by loss of control or social influences, and are diseases or decisions. All of these controversies represent false dichotomies. As was pointed out in Chapter 1, no single influence

or historical path can explain initiation or recovery. Addictions represent polygenetic, multidimensional, biopsychosocial and spiritual, brain and behavior conditions that affect millions of lives around the globe. These conditions cross borders of culture, education, religion, economic status, race, and ethnic identity. They are equal-opportunity afflictions. To be able to understand, research, and change addictions, we must embrace the genius of the *and*, not the tyranny of the *or*.

This chapter offers my thoughts about current topics and key questions related to addiction and change. This overview covers the following topics. Although the new DSM-5 considers substance use disorders on a continuum of mild, moderate, and severe, our ways of assessing severity are not based on the dynamic, multidimensional, process perspective needed to understand how addictive behaviors operate in individuals' lives. Addictive behaviors are pervasive and problematic in both medical and criminal justice settings. What can we learn from our journey through addiction and change that can inform both precision medicine initiatives and addiction treatment in prisons? Clearly, addictive behaviors are seductive. What are the human needs that seem to fuel interest in and the process of initiation? Loss of control is a hallmark of addiction and a barrier to recovery. How does self-regulation play a role in initiation and recovery? Societal views of addiction are always shifting and public policies changing. How does that affect addiction and change process? Finally, I offer a list of key lessons learned from my journey exploring how initiation and recovery can be understood from a process of change perspective.

DEFINING ADDICTION: A NEW VIEW OF ADDICTION SEVERITY

The shift from DSM-IV to DSM-5 introduced a new diagnostic categorization for addictive behaviors and reignited confusion and controversy related to how to measure and label addictions (American Psychiatric Association, 2013; Reif & Martin, 2014; Wakefield, 2016). The terms *dependence* and *abuse* had significant problems, and the shift to use disorders (mild, moderate, and severe) has pleased some and upset others. As discussed in Chapter 3, defining the end state of addiction is challenging. The behaviors that are labeled addictive can be engaged in by individuals with no, some, or a lot of consequences (Kiluk, Dreifuss, Weiss, Morgenstern, & Carroll, 2012). Adaptive properties of our bodies and brains make the end state a moving target; some individuals may ingest large amounts of substances without experiencing as much impact on certain areas of functioning as others who ingest less. So the way the framers of the DSM approached identification of addictions was to list a heterogeneous array of consequences and symptoms and use number of

symptoms present as criteria for diagnosis. However, this definition has little to do with understanding etiology, progression, or recovery. Moreover, it is important to remember that diagnosis is not relevant for most prevention efforts and does not effectively account for varied patterns of use, like binge drinking and social smoking. We need a better way to characterize the scope and severity of addiction. The 11 indicators in DSM-5 offer a jumping-off point but are not adequate to describe or define the dynamic process of initiation or recovery.

Several approaches that been used to measure severity (see Table 13.1). Although many of these approaches focus only on single dimensions, all seem to identify variables that seem important for assessing severity. However, each one on its own does not constitute a measure of addiction severity that is both conceptually driven and able to characterize use disorders across addictive behaviors effectively. Moreover, these dimensions do not map on well to motivation and the process of change for initiation or recovery.

Some attempts have been made to connect addiction severity with motivational dimensions. For example, one of the more comprehensive approaches for understanding severity of alcohol use is the Alcohol Use Inventory (Wanberg, Horn, & Foster, 1977). It provides a multidimensional view of alcohol use that incorporates the symptoms, benefits, and consequences of use; amount consumed; patterns of use; and indicators of motivation to change consumption. The ASAM Placement Criteria also include motivation for treatment as one of six biopsychosocial dimensions assessed in order to guide treatment placement in terms of type and level of care (Mee-Lee, 2013). The Addiction Severity Index goes beyond the addictive behavior and describes multiple areas of functioning that can be affected by addictions. Disruption and distress (a marker of motivation) in these areas creates a severity dimension and gives direction for areas needing to be addressed in a comprehensive treatment (McClellan, Luborsky, Woody, & O'Brien, 1980). Most of

TABLE 13.1. Measures of Severity of Addiction

-
- *DSM-5*—number of symptoms/indicators (6 of 11)
 - *Quantity and frequency* (percentage days abstinent, number of drinks per drinking day)
 - *Consequences/problems* attributable to drinking/drug use (physical, social, legal, or psychological)
 - *Craving*
 - *Comorbidity*
 - *Multiple problems* in life context
 - *Environment* (use by peers and saturation of environment [Inventory of Important People and Activities])
-

these categorizations depend on consequences, co-occurring conditions, and current self-reported perspectives. All these efforts are useful but do not characterize addiction severity in terms of a process of change. The challenge is to create a new view that acknowledges the multidimensionality of addictive behavior patterns and that (1) aids us with diagnosis; (2) accounts better for severity's influence on motivation in both initiation and recovery; (3) offers specific guidance for treatment planning and matching; and (4) is connected with a process perspective that characterizes the progression of severity typical in the Action and Maintenance stages of initiation. This was the goal of the work described in Chapter 3 to understand the end state of the journey into addiction. Ray Daugherty, of the Prevention Research Institute, Inc., and I explored the literature on how severity is defined, discussed multiple options, and came up with a set of indicators that seem able to characterize severity in a dimensional manner and deepen our understanding of addictions. Key indicators include (1) level of risk and pattern of engagement; (2) stability and severity of structural and functional consequences in the three critical mechanisms of neurobiological adaptation, self-regulation, and salience of the addictive behavior in one's behavioral repertoire; and (3) pervasiveness of the impact of engagement in the addictive behavior across three domains of functioning. What follows is a detailed explanation of these indicators.

Level of Risk and Pattern of Engagement

We begin with some characterization of the pattern of engagement in the addictive behavior. It has always seemed a strange anomaly that diagnoses of dependence or use disorders have not included some measure of quantity and frequency of use. Although it is difficult to measure accurately the quantity of use for many types of substances, it is important for understanding severity and patterns of use. Cigarettes (at least the manufactured ones) seem the easiest since they can be counted in standard, measurable doses. Other substances, including alcohol, are more difficult because of the varying nature of the dose and frequency of dosing. For instance, two drinks of 12 ounces of alcohol and two hits of cocaine are both ambiguous measures in that they depend on the alcohol content, purity of the cocaine, and frequency of use. Although often difficult to measure and not included in DSM-5, quantity and frequency matter. These dimensions are associated with relative risk, critical for establishing initiation and use patterns, clearly related to motivational goals (cutting down), and indicators of goals for change when creating a different pattern of use. Thus the first important indicator of addiction

severity is quantity and frequency, which can be considered necessary but not sufficient to describe problematic engagement in addictive behaviors.

Some way to distinguish no risk from low-risk, infrequent high-risk, frequent high-risk, and extensive high-risk engagement in the addictive behavior seems critical for understanding severity of addiction (see Chapter 3). For certain substances, such as alcohol, quantity and frequency may be a way to meaningfully distinguish between these levels of engagement. For instance, alcohol researchers have begun to use the following measures: percent days abstinent, drinks per drinking day, percent heavy drinking (binge) days, binge episodes, and at-risk drinking levels (Dawson, Grant, & Li, 2005; Project MATCH Research Group, 1997a). For other substances and process addictions, like gambling, it may be more difficult to use quantity and frequency as a measure of engagement. However, some measure of days of use or engagement, frequency of use (hours spent, days used), and some indicator of quantity of use (money spent; number of bags used) would be important for understanding how extensive and intensive the current pattern of engagement is. How long that pattern has existed and how stable that pattern is over time represent additional pieces of information that help distinguish between Action and Maintenance for initiation.

Mechanisms of Addiction

Some important mechanisms that create an addiction are also essential for understanding severity of addiction. We have identified three that seem to summarize critical elements of how addictive behaviors take over the lives of individuals: neurobiological adaptation, impairment or reduction in self-regulation, and salience of engagement or narrowing of the behavioral repertoire. Each of these can be measured along a continuum from mild to severe, depending on the extent of the impact of the addictive behavior in each area. These mechanisms represent how the pattern of engagement has an effect on brain structure and functions, on internal mechanisms of self-control, and on preferred behavioral activities.

Pervasiveness of Consequences in Critical Life Domains

In addition to these mechanisms and the ways addictive behaviors take over individuals' lives, a full conceptualization of severity also requires some knowledge of how extensive or pervasive the consequences of the addictive behavior are in three critical domains of functioning: physical, social, and psychological. The impact assessment in these domains helps to identify the scope of the damage and consequences of engagement in

these critical areas. It matters whether someone already has alcoholic liver disease or hepatitis C, whether the drinking pattern is primarily with a spouse or fraternity or the drug use pervades all areas of the individual's daily life, and whether the substance use functions as an important method of psychological coping with negative emotions or emotional pain. Domains offer a way to include in our assessment of severity important consequences of use in physical domains (liver problems, hepatitis, or neurological effects), psychological domains (anxiety, stress, cognitive functioning, coping, or neuropsychological effects), and social domains (anger control, domestic violence, legal problems, interpersonal and family disruption). Counting consequences is not as important as evaluating how extensively and in which life domains these consequences have made an impact. Each of these domains could be viewed as a pie chart that can be shaded in to indicate how pervasive the impact of the addictive behavior is on these domains of the individual's life.

Although it may not be possible to measure every dimension in every case, the more that can be captured the better. Each represents a different aspect of the process of entering the end state that we call addiction. They represent the behavior patterns and impact that are characteristic of what happens along the journey through the Action and Maintenance stages of becoming addicted. They also should help us to understand severity and distinguish between the adolescent becoming a heavy smoker, the homeless, chronic drug user, the heavy-drinking executive, the binge drinker, the recreational marijuana user, the college drinker, and the veteran with posttraumatic stress disorder (PTSD) and dependent on multiple substances. These individuals could be expected to differ from each other in risk levels of engagement measured by quantity and frequency, extent of activation of the three mechanisms of action, and the pervasiveness of consequences in the three domains of functioning. In addition to helping distinguish between individuals on current clinical characteristics, these dimensions of severity can also help us understand better the course of initiation and, more important, the progression from mild to moderate to severe use disorders. They can also help us create prevention messaging for risk behaviors and tailored treatments for multiple levels of severity and the individual differences that exist within each of these categories. One DSM-defined moderate or severe use disorder measured by four to five or more than six symptoms would not be not equivalent to another in terms of these dimensions of severity.

The challenge is in how to measure these dimensions in a manner that is comprehensive, allows for a range of severity, and can be assessed easily. Table 13.2 offers an overview of these dimensions that should be included in these assessments. In fact, we have some existing measures

TABLE 13.2. A New View of Addiction Severity

Level of risk and pattern of engagement
No risk
Low risk
Infrequent high risk
Frequent high risk
Extensive high risk
Mechanisms of addiction (mild to severe)
Neurobiological adaptation
Impairment or reduction in self-regulation
Saliency of engagement/narrowing of the behavioral repertoire
Pervasiveness of Consequences in critical life domains
Biological
Psychological
Social

that include some of these concepts and range from self- and informant-report to psychophysical and imaging techniques. For the *neurobiological adaptation* dimension, for instance, we have measures of tolerance and withdrawal, temptation to use across a variety of cues, stress regulation, brain function (i.e., functional magnetic resonance imaging [fMRI]), and physiological reactivity. For *reduced self-regulation*, there are measures of automaticity of use, difficulty cutting back, continued use despite serious consequences, increases in impulsivity, and impairment in executive cognitive functioning and/or affect regulation. For increases in *saliency/narrowing of the behavioral repertoire*, there are measures of expectancies, loss of alternative pleasurable activities, inclusion of the substance in multiple domains of one's life, increased time and energy dedicated to use, results of drug testing, associated or co-occurring problems, preference for the addictive behavior, and behavior economic indicators. Many of these measures coupled with consequences measures would provide valuable information about the impact of the addictive behavior across the three life domains. Administering these measures on multiple occasions, perhaps making use of new technologies such as ecological momentary assessment, may be useful to ensure reliability and to provide real-time tracking. This would be a rather large endeavor but would be well worth the effort if it can offer a comprehensive and detailed view of addictions that truly captures the multidimensional, biopsychosocial nature of addiction and change for those struggling with them.

PRECISION MEDICINE

The more extensive scope of the preceding definition of addiction severity and the entire perspective of *Addiction and Change* are offered to increase our understanding of addiction and recovery. However, what the change process perspective offers more importantly is the ability to elucidate the individual journey through the process of initiation and the process of recovery. Understanding these processes at the individual level increases our ability to tailor prevention and treatment initiatives to individuals, subpopulations, and populations. The dimensions of stages, processes, markers, and context are completely compatible with the NIH initiative encouraged by President Obama called the “Precision Medicine Initiative” (PMI). The PMI Working Group has defined this initiative as follows:

We define precision medicine as an approach to disease treatment and prevention that seeks to maximize effectiveness by taking into account individual variability in genes, environment, and lifestyle. Precision medicine endeavors to redefine our understanding of disease onset and progression, treatment response, and health outcomes through the more precise measurement of potential contributors—for example, molecular measurements as captured through DNA sequencing technologies or environmental exposures or other information captured through increasingly ubiquitous mobile devices. A precise delineation of the molecular, environmental, behavioral, and other factors that contribute to health and disease will lead to more accurate diagnoses, more rational disease prevention strategies, better treatment selection, and the development of novel therapies. Coincident with advancing the science of medicine is a changing culture of medical practice and medical research that engages individuals as partners—not just as patients or research subjects. We believe the combination of a highly engaged population and rich biological, health, and environmental data will usher in a new and more effective era of American healthcare. (2015, p. 6)

The description above highlights the need to envision both the onset and recovery of a condition like addiction in a multidimensional manner and to keep the individual’s context and varied problems in focus (Abrams et al., 1996). It also asks providers to be collaborators, viewing those they treat as partners and not simply patients or research subjects. This is an enriching perspective that supports many of the innovations happening in the field of addictions and is completely compatible with the insights in this volume.

A precision medicine perspective requires us to support the broader vision of behavioral health that includes addiction as a critical

component to be addressed in all health and mental health research, prevention, and treatment. It highlights motivation as a critical component for prevention and treatment by supporting collaboration. Researchers and providers must accompany individuals as they move through the stages of initiation and recovery in order to understand the challenges and opportunities for intervention. We must be able to pinpoint where individuals are in the process to precisely deliver prevention messages or to tailor treatment approaches. Precision medicine also encourages us to avoid a narrow view of any condition and to connect molecular and genetic data with environmental and personal data so that we can see the larger picture. We must avoid silos and encourage cross-fertilization. This perspective is particularly impressive and ground-breaking coming from the National Institutes of Health (NIH), which has often made its constituent institutes siloes defined by problems or populations and includes multiple institutes that focus on addictions directly (National Institute on Drug Abuse, National Institute on Alcohol Abuse and Alcoholism, National Cancer Institute) and indirectly (National Heart, Lung and Blood Institute, National Institute of Allergy and Infectious Disease, National Institute of Mental Health). Synergy from a comprehensive perspective can bring efforts in these various areas of research together. The key is to focus on the journeys of individuals and not simply try to understand or intervene with the average patient, a single condition, or an entire population (Prochaska, DiClemente, Velicer, & Rossi, 1993; Velicer et al., 1995).

ADDICTIONS AND THE CRIMINAL JUSTICE SYSTEM

Imposed change represents a different process from intentional change. The model presented in this book is focused on intentional change of specific behaviors. How could such a model apply to addiction treatment that now often occurs in criminal justice settings? The answer is: with some difficulty. Treatment in criminal justice settings, especially prison, represents a challenge for intentional behavior change (Schottenfeld, 1989). In these settings, there is not adequate opportunity to choose whether to engage in the behavior, and there are typically important rewards for appearing motivated and doing what is expected. Often behavior is extrinsically motivated by these rewards, rather than by the internal valuing, decision making, and intrinsically motivated coping activities needed for intentional behavior change.

This does not mean there is no possibility of intentional change in prison. Only that it is more difficult to engage and achieve. Moreover, since there is lack of access to the addictive substances and activities in

these settings, at least in theory, there is little need for choice, behavioral processes, and coping activities. Thus it is difficult for someone in prison to be further along in the process of recovery than the Preparation stage of intentional change. Upon release, individuals will have opportunity to engage in the addictive behavior, which will test decision making and commitment, allow for use of behavioral processes of change, and build self-efficacy. Until those processes are engaged, however, they are not truly in the Action stage.

The distinction between intentional and imposed change is important for understanding how to work with recovery from addictions inside a prison system. Absence of a behavior is not the equivalent of intentional abstinence. Many individuals will stop or start a behavior without engaging in the intentional process of change. If the behavior is totally dependent on extrinsic motivation, then individuals will avoid drinking during the 6 months of probation, exercise regularly to win a bet that they can run a 5K, stop smoking during pregnancy or when in the hospital, not use cocaine during a period of intensive drug testing, or stop gambling to convince a spouse they are not pathological gamblers (Stotts et al., 1996; Stotts et al., 2000). In these cases, the behavior is suspended but not changed. This does not mean suspending a behavior cannot be helpful for promoting or encouraging intentional change. In fact, intervention strategies to engage individuals often include trying out a period of abstinence or moderation (e.g., sobriety sampling, the Great American Smoke Out, reduction of use) as a way to promote consideration of change and shift the decisional balance. The real danger of imposed change is when it is confused with intentional change by addicted individuals or helpers.

How can we engage the intentional change process in settings that promote imposed change? Several strategies come to mind. First, make sure you are working to engage cognitive/experiential processes of change, and explain the difference between intrinsic and extrinsic motivation when working with individuals in these settings or situations (El Bassel et al., 1998). Try to make sure the individual is connecting important values and personal reasons to efforts to not engage in the behavior. Second, although the change is imposed rather than chosen, it still takes some effort and focus to make this happen. Support the ability to make the change, affirm the effort, and engage self-efficacy evaluations so the individuals feel empowered to make the change intentionally. Finally, as the extrinsic motivators end or fade out, make sure to create a transition phase that is very active and supportive of intentional change. Consider fading out rather than abruptly discontinuing contingencies. Halfway houses, weekend passes with drug testing on return, and accompanied forays into the community are examples of ways to

effectively link community resources to individuals transitioning out of prison or restricted settings. See if you can engage family or social sources of imposition to shift them to become sources of support for intentional change. From an intentional change perspective, the bottom line is to maximize the opportunity that imposed change provides while, at the same time, trying to engage more intrinsic motivation and making sure that the transition from restricted setting or extrinsic motivators is gradual and guided.

THE NEED FOR PLEASURE, EXCITEMENT, MEANING, AND ESCAPE FROM PAIN

Addictive behaviors involve pleasure centers of the brain. They are attractive because of how they make us feel and the experience they provide. They are particularly attractive when we are sensation seeking or looking for something to give us a sense of excitement and an innovative experience. This is especially the case in adolescence and emerging adulthood, when innovation and experimentation are valued and the angst of the search for personal identity and meaning is most salient. During these formative years, brain and self-regulatory mechanisms are developing and vulnerable, and sense of belonging and social influences are very strong. Addictive behaviors are also effective in relieving physical and emotional pain, especially opiates and marijuana. This effect is often more important for individuals who have experienced traumatic events, lack of meaningful sources of reinforcement, or who need escape. Although individuals can make the journey into addiction during any phase of their lives, emerging adulthood is a particularly fertile field for initiation of an addictive behavior. How can we appreciate what the addictive behaviors bring to the lives of those who progress from some experimentation and contemplation to more exposure, engagement, and commitment to an addictive behavior?

We can understand a lot about the lure of addictions from the stories of those who have succumbed to the enticing attraction and from those who have not. Addiction is not simply a deficit in dopamine, the neurotransmitter most associated with pleasure and addictive behaviors. Although there is genetic and neuroscience research that supports the importance of the brain's pleasure centers and associated neurochemicals in initial engagement and progression to addiction (Childress, 2006), the lure is not simply biochemical. Rather, it involves psychological, social, and spiritual dimensions (Miller & Carroll, 2006). Risk factors (e.g., child abuse, parental absence, poor emotion regulation, social isolation, risk-taking peer group, and anxiety and depression) as well as protective

factors (e.g., spiritual values, academic achievement, and parental monitoring) indicate that vulnerability to becoming addicted—not always to experimentation or social use—is closely linked to escape, a search for meaning and normality, and a sense of belonging.

To understand the journey into and out of addiction we must make a distinction between the larger number of individuals who will report lifetime use and those who have progressed into the Action and Maintenance stages of an addiction. Although risk taking, excitement, and pleasure may fuel experimentation and social use, creating sustained patterns of misuse generally involves the darker elements of lack of meaning, managing psychological pain, escaping stress, and maintaining use to feel “normal.” Many models of addiction indicate that the reason for beginning differ from the reasons for sustaining problematic engagement in the addictive behavior (Childress, 2006; Koob, 2008; Koob & Le Moal, 2008; Solomon & Corbitt, 1974). Although experimentation and some early use are spurred by excitement, pleasure, risk taking, and social pressures, the foundation of an addiction is really a crisis of meaning, a sign of suffering, a desire to live in an alternative universe, or a way of managing stress and unwanted feelings (Volkow et al., 2016). The small segments of the population of individuals who move forward toward the well-maintained addiction are the escapists and those who seek the altered normality and no longer the pleasure seekers. Our prevention strategies and our approaches to reaching the addicted individual must reflect these two realities. Those of us who have experimented and had what we considered fun engaging in these behaviors (even to misuse levels) should not think that these are the same experiences creating or sustaining the addicted individual.

SELF-REGULATION AND THE PROCESS OF CHANGE

It is not by chance that deficits in affect regulation, executive functioning, and self-control play a role in both the initiation and recovery processes of change and represent defining symptoms in diagnosing addictions. Self-regulation deficits contribute to initiation and progression of addictions, are created by the effects of the addictive behavior on brain and future behavior, and are critical to the process of recovery. Since these regulatory systems are so critical to the process of change, we need to understand better how they are related and how they play a role in the process (Baumeister & Vonash, 2015; Carver & Scheier, 2016; Heather, Miller, & Greeley, 1991; Vohs & Baumeister, 2016; Wiers et al., 2007).

The TTM describes behavior-specific dimensions of change. The

stages help us to understand that the same person could be in very different places in the processes of quitting smoking, moderating drinking, or using methadone to manage an opiate addiction. The tasks of the stages (concern, decision making, commitment, planning, and taking action) focus on the target behavior and goal, as do the processes of change. The TTM variables describe the process for generating this specific behavior change, initiating, modifying, or stopping a behavior pattern. The mechanisms are focused on achieving this targeted behavior change. If these mechanisms focus on quitting drinking, they will not affect marijuana use unless smoking marijuana is considered part of the constellation of behaviors targeted or focused on in this change attempt. Thus the stages and processes represent *mechanisms for generating specific changes*.

So where does self-regulation fit into this process? All the change-generating mechanisms described in the TTM require use of self-regulation processes and structures. When we ask individuals to self-monitor, to make decisions, to plan, to identify cues, to delay responding, and to respond with alternative thoughts or behaviors, we are asking them to use self-regulatory skills, strength, and capacity to accomplish these tasks (DiClemente, 2007). Self-regulation, executive cognitive functioning, and affect regulation underlie the capacity and ability to engage in processes of change and to complete adequately the tasks of the stages of change (Carver & Schier, 2016). The concept of self-control strength using the analogy of a muscle described by Baumeister and colleagues (Muraven & Baumeister, 2000) also captures a core self-regulation variable. Whether there is a chronic or acute exhaustion of that muscle/strength, without adequate self-control strength, it is difficult, if not impossible, to engage specific change-generating mechanisms (Baumeister & Vonasch, 2015). In addition to the critical role of self-regulation in addiction and change, the reality is that addictive behaviors undermine and exacerbate an often already compromised self-regulatory system (Childress, 2006; Sayette & Creswell, 2016).

Thus the self-regulatory processes represent *change-regulating mechanisms*. Intact self-control mechanisms and strength do not guarantee a behavior change without use of specific behavior change-generating mechanisms. However, trying to engage and use change-generating mechanisms when an individual has seriously compromised change-regulating mechanisms will also be problematic. Failed attempts to adequately complete the tasks of and achieve sustained change can result from problems in either set of mechanisms. You need adequate engagement of both change-regulating and change-generating mechanisms to achieve significant and lasting change. Thus, self-regulation is necessary but not sufficient to create successful change.

These change-regulation mechanisms operate somewhat differently in initiation and recovery. In the initiation process, inadequate executive cognitive functioning, affect regulation, and self-control strength contribute to destructive decision making, vulnerability to peer pressure, lack of ability to delay gratification, and poor planning to control use, which in turn accelerate movement through the stages of initiation. Given that adolescence and emerging adulthood are periods of ongoing brain development, self-regulation deficits or delays are normative and contribute to the vulnerability inherent to these developmental periods. Decision making, self-reevaluation, commitment, planning, and implementation are all undermined by ineffective executive cognitive functioning and affect regulation, as well as seriously compromised self-control strength. In addition, deficits in self-regulation contribute to problematic engagement in treatment, inadequate utilization of support systems, and poor judgement when implementing change.

What are the implications of these change-generating and change-regulating mechanisms for prevention and treatment? As we begin to learn more about the role self-regulation and self-control (Baumeister & Vonash, 2015; Carver & Scheier, 2016; Vohs & Baumeister, 2016), we need to create interventions and support systems that address both sets of mechanisms. Many prevention and treatment efforts already target these mechanisms, although often without explicitly articulating that they are doing so. Efforts to provide external structure or support (intensive monitoring of vulnerable youth, structured activities at local clubs or centers, therapeutic communities, and drug-free housing) are attempts to intervene with change-regulating mechanisms. These programs or interventions are not specific to preventing or treating an addictive behavior. Rather, they aim to build and support fragile self-regulation mechanisms, thereby enhancing capacity to use the change-generating mechanisms to prevent initiation or accomplish recovery.

Researchers and clinicians should pay more attention to the distinction between these two types of mechanisms. Currently, most interventions focus on change-generating mechanisms (i.e., behavior specific interventions to get people to change views or expectations of the addictive behavior, engage in activities to avoid that behavior, or take actions to change the behavior). Unfortunately, they often fail to pay attention to the state of the person's change-regulating mechanisms. Asking someone to manage negative emotion cues without attending to basic affect regulation skills does not make sense. Requiring someone who has poor executive cognitive functioning to create and implement change plans seems destined to result in ineffective or difficult-to-implement strategies. Trying to get someone whose self-control "muscle" is already

exhausted to manage complex strategies and use behavioral processes of change seems naïve. It seems similar to asking someone in a hospital bed with a serious neurological illness to run a marathon. Hence, to provide integrated care and to meet the lofty goals of precision medicine, we must pay attention to both change-regulating and change-generating mechanisms of change.

SCAFFOLDING: SUPPORTING SELF-REGULATION AND SELF-CONTROL

To promote and support change-regulating mechanisms we must use a different focus and broaden our perspective on prevention and treatment interventions. There is a concept from the developmental and educational psychology literature that has been very useful in thinking about how to support change-regulating mechanisms. It is called “scaffolding” and is used in various developmental and educational interventions and discussed in Chapter 10. First used by Wood, Bruner, and Ross (1976), the concept of scaffolding was used to describe the role of tutoring in problem solving and was a metaphor for illustrating the type of instructional support needed to support learning. It was also used in collaborative therapeutic assessment to provide feedback and offer support until the individual could perform the task without that support (Darling, 2011; Reid, 1998). Scaffolding was also connected to the work of Vygotsky (1978) and his concept of the “zone of proximal development,” which distinguished between the child’s actual current ability and her or his potential level of development that could be achieved with help from adults or more competent peers (Aschieri, Fantini, & Smith, 2016). The idea is to design and use strategies and interventions that can support the individual in accomplishing some tasks until he or she can do these without help and support. Although focused on cognitive learning tasks, the concept also applies to behavioral learning. For the child who is first learning how to ride a bike, parents often “scaffold” their learning by holding on to the seat or running alongside with a hand held out to catch them if they lose control.

Most of us know what scaffolding is because we have walked under these metal or wooden structures as a building is being renovated. When buildings are under construction, there needs to be structure to protect and support the building when it is vulnerable. Similarly, individuals with self-regulatory deficits and challenged self-control need support systems to shore up their regulatory systems and enable them to begin accomplishing some of the change-generating tasks. If the challenge is

exhaustion of self-control strength, there may need to be a time of rest and replenishment to rebuild that resource. Our treatments may not be consistent with the needs of addicted individuals and our concept of severity of addiction (Arria & McClellan, 2012; McClellan, Hagan, Meyers, Randall, & Durell, 1997).

Although sometimes criticized for taking too long or being too structured, modified therapeutic communities that offer 9-month to 2-year treatment programs provide the time and exercises to rebuild self-control strength and self-regulation capacities. It is no coincidence that these programs often attract individuals with problematic resources and support systems and those with serious loss of control over the addictions. Impairment in self-regulation is certainly one way to justify intensity and extensiveness of certain residential treatment programs, which use small rebuilding tasks like making beds and cleaning dishes, as well as interactive support systems. Individuals need intact change-regulation mechanisms of self-regulation and self-control strength to be able to engage the change-generating mechanisms of recovery.

CONSTANTLY CHANGING SOCIETAL VIEWS ON ADDICTIVE BEHAVIORS

Perspectives and policies on addictive behaviors have differed by type, historical time period, morality, and pragmatism. Currently, society seems to have a love-hate relationship with many of them. In the United States the prevailing view seems to be that the range of behaviors that bring pleasure and relief of pain should be both legal and illegal, may be advertised but should be prevented from becoming problems, should be condemned as moral failures unless prescribed, should be punished if done by reprehensible people but treated if they are family members, and should be kept in the shadows of a black market unless supported by or providing taxes to the government. This societal ambivalence is mirrored in families and individuals, providers and social services, employers and insurers, legislators and judges.

There is little ambivalence about getting rid of drug dealers who have destroyed the core of many cities, stopping importation of drugs before they reach our shores, and making sure that drug abuse and addiction are kept “under control.” Criminalization of drug use also has become the accepted way of managing addiction and the economic system created by the illegal sale and use of substances. However, even here there is some ambivalence and disagreement.

The problem is that we have a range of addictive behaviors, all of which can lead to a well-maintained addiction, that vary widely in their legality. Some are always illegal (heroin, cocaine), while others are mostly legal (prescription drugs). However, the vast majority (gambling, drinking, tobacco, marijuana) could be legal or illegal depending on age, amount, and consequences as well as the location. Thus legality is not a protection against addiction and is a force that can produce mixed effects on initiation and recovery. Legality or illegality can promote or prevent either initiation or recovery depending on a number of factors (social influences, problematic or strict enforcement, personal risk taking, etc.). So making all addictive behaviors illegal is not the answer, but neither is making all of them legal. Although sane policies about addictive behaviors are important, the issue of legality is really a “red herring” that distracts societies from facing the larger problems and forces that lead to addiction or change.

Policies should be based on the process of change, with an eye toward what we know about how to influence that process. As discussed in Chapter 12, policies should be tested for impact on initiation and recovery, not simply put in place because a policymaker or think tank came up with the idea. Policies often have side effects that are critical for societal health. Designing different penalties for different forms of a drug (crack vs. cocaine) created a criminal justice system that was overwhelmed with poor, African American inmates who only now are being released and pardoned. Prescribing policies and practices for distributing opiate medications have facilitated the ongoing opiate addiction crisis. Making those medications difficult to obtain has contributed to the heroin overdose problem. Taxation and revenue considerations have created conflicts of interest in promoting some activities (gambling, recreational marijuana) and preventing initiation of addictions. Clearly, policies are important. The process of change perspective can inform the creation of policies that support sound prevention and recovery efforts and prevent destructive unanticipated side effects.

TOP 20 LESSONS LEARNED

A process perspective on initiation of and recovery from addictions offers a number of important lessons for how we think about and deal with addiction in our society, how we craft policies, how we research addictions, and how we prevent initiation and promote recovery. Here are the top 10 overall and another 10 intervention lessons that I believe we can learn from the preceding analysis of addiction and change.

OVERALL LESSONS

1. Change is a process, not a product.
2. Both becoming addicted and recovery from addiction are journeys through an intentional, multifaceted, and complicated yet understandable process of change.
3. A process of change perspective would enhance integrated care and precision medicine for addictions.
4. To better understand the process of change we should look within at our own behavior change.
5. Interventions should target experiential and behavioral change processes and focus on tasks of the stages while monitoring key markers of change.
6. There are *change-generating* and *change-regulating* mechanisms that interact in movement through the change process and should be addressed in prevention and treatment.
7. Executive cognitive functioning, affect regulation, and self-control strength represent change-regulating mechanisms that moderate the change process.
8. Both implicit and explicit influences affect decision making, planning, and implementation of change.
9. Defining addiction as an end state of initiation and the beginning of recovery requires a dimensional, not dichotomous, perspective that accounts for level of engagement, mechanisms of addiction (neuro-adaptation, self-regulation, and life-space salience), and the impact of consequences on key domains of functioning.
10. Both prior to and after being implemented, policies and regulations should be examined with regard to how they affect individuals in diverse stages of initiation and recovery.

INTERVENTION LESSONS

11. Understanding initiation as a multidimensional journey of change empowers targeted and tailored prevention.
12. Successful prevention and recovery involve working in partnership with an individual as he or she moves through stage tasks and engages in change process activities.
13. Keeping populations in Precontemplation for initiation requires more than demonizing the addictive behavior.
14. Preventing acceleration is even more important than preventing experimentation.

15. Life context complicates assessing and promoting or preventing movement through the stages of initiation and recovery.
16. Tailoring prevention and intervention efforts requires both a telescope and a microscope.
17. Maintenance is a very active stage that includes building new life structures and satisfactions to support and sustain change.
18. Relapse is not only a problem of addiction and occurs in most intentional health behavior change.
19. Relapse is not failure but part of successive approximation learning when it helps individuals to learn how to negotiate the tasks of the stages of change.
20. Interventions to prevent initiation or promote recovery support self-change processes already in progress. They do not represent a separate path to change.

References

- Abrams, D. B., Herzog, T. A., Emmons, K. M., & Linnan, L. (2000). Stages of change versus addiction: A replication and extension. *Nicotine and Tobacco Research*, 2(3), 223–229.
- Abrams, D. B., Orleans, C. T., Niaura, R. S., Goldstein, M. G., Prochaska, J. O., & Velicer, W. (1996). Integrating individual and public health perspectives for treatment of tobacco dependence under managed health care: A combined stepped-care and matching model. *Annals of Behavioral Medicine*, 18, 290–304.
- Adesso, V. J. (1985). Cognitive factors in alcohol and drug abuse. In M. Galizio & S. Maisto (Eds.), *Determinants of substance abuse: Biological, psychological and environmental factors* (pp. 179–208). New York: Plenum Press.
- Agley, J., Gassman, R., YoussefAgha, A., Jun, M., Torabi, M., & Jayawardene, W. (2015). Examining sequences of adolescent substance use initiation involving over-the-counter (OTC) drug abuse. *Journal of Child and Adolescent Substance Abuse*, 24(4), 212–221.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
- Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology*, 52, 27–58.
- Akl, E. A., Gaddam, S., Gunukula, S. K., Honeine, R., Jaude, P. A., & Irani, J. (2010). The effects of waterpipe tobacco smoking on health outcomes: A systematic review. *International Journal of Epidemiology*, 39(3), 834–857.
- Alcoholics Anonymous. (1952). *Twelve steps and twelve traditions*. New York: Author.
- Alcoholics Anonymous. (1976). *Alcoholics Anonymous (The Blue Book)*. New York: Author.
- Allen, J. P., & Litten, R. Z. (1999). Treatment of drug and alcohol abuse: An overview of major strategies and effectiveness. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 385–398). New York: Oxford University Press.
- American Academy of Pediatrics, Committee on Substance Abuse. (2011). Substance use screening, brief intervention, and referral to treatment for pediatricians. *Pediatrics*, 128(5), 1330–1340.

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.
- Amigo, I., & Fernandez, C. (2007). Effects of diets and their role in weight control. *Psychology, Health, and Medicine*, 12(3), 312–327.
- Amrhein, P. C., Miller, W. R., Yahne, C. E., Palmer, M., & Fulcher, L. (2003). Client commitment language during motivational interviewing predicts drug use outcomes. *Journal of Consulting and Clinical Psychology*, 71, 862–878.
- Anglin, M. D., & Hser, Y. (1992). Drug abuse treatment. In R. R. Watson (Ed.), *Drug abuse treatment* (pp. 1–36). Totowa, NJ: Humana Press.
- Anton, R. F., O'Malley, S. S., Ciraulo, D. A., Cisler, R. A., Couper, D., Donovan, D. M., et al. (2006). Combined pharmacotherapies and behavioral interventions for alcohol dependence: The COMBINE study: A randomized controlled trial. *Journal of the American Medical Association*, 295(17), 2003–2017.
- Arria, A. M., & McLellan, A. T. (2012). Evolution of concept, but not action, in addiction treatment. *Substance Use and Misuse*, 47(8–9), 1041–1048.
- Aschieri, F., Fantini, F., & Smith, J. D. (2016). Collaborative/therapeutic assessment: Procedures to enhance client outcomes. In S. Maltzman (Ed.), *The Oxford handbook of treatment processes and outcomes in psychology* (pp. 241–269). New York: Oxford University Press.
- Babor, T., & Del Boca, F. (Eds.). (2002). *Treatment matching in alcoholism*. New York: Cambridge University Press.
- Babor, T. F., Steinberg, K., Anton, R., & Del Boca, F. (2000). Talk is cheap: Measuring drinking outcomes in clinical trials. *Journal of Studies on Alcohol*, 61, 55–63.
- Baer, J. S. (1993). Etiology and secondary prevention of alcohol problems with young adults. In J. S. Baer, G. A. Marlatt, & R. J. McMahon (Eds.), *Addictive behaviors across the lifespan: Prevention, treatment and policy issues* (pp. 111–137). Newbury Park, CA: SAGE.
- Baer, J. S., Marlatt, G. A., & McMahon R. J. (Eds.). (1993). *Addictive behaviors across the lifespan: Prevention, treatment and policy issues*. Newbury Park, CA: SAGE.
- Bailey, S. L., & Rachal, J. V. (1993). Dimensions of adolescent problem drinking. *Journal of Studies on Alcohol*, 54(5), 555–565.
- Baldwin, J. M., Stogner, J. M., & Lee Miller, B. (2014). It's five o'clock somewhere: An examination of the association between happy hour drinking and negative consequences. *Substance Abuse Treatment, Prevention and Policy*, 9(1), 1–20.
- Balogh, K. N., Mayer, L. C., & Potenza, M. N. (2013). Risk-taking and decision-making in youth: Relationships to addiction vulnerability. *Journal of Behavioral Addictions*, 2, 1–9.
- Bandura, A. (1977). The anatomy of stages of change [Editorial]. *American Journal of Health Promotion*, 12, 8–10.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Barber, W. S., & O'Brien, C. P. (1999). Pharmacotherapies. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 347–369). New York: Oxford University Press.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.
- Barrett, R. J. (1985). Behavioral approaches to individual differences in substance

- abuse: Drug-taking behavior. In M. Galizio & S. A. Maisto (Eds.), *Determinants of substance abuse: Biological, psychological and environmental factors* (pp. 125–178). New York: Plenum Press.
- Bates, M. E., Buckman, J. F., & Bates-Krakoff, J. (2013). Treatment of addictions and effects of neuropsychological impairment on mechanisms of behavior change. In D. N. Allen & S. P. Woods (Eds.), *Neuropsychological aspects of substance use disorders: Evidence-based perspectives* (pp. 82–102). New York: Oxford University Press.
- Bauman, A. E., Reis, R. S., Sallis, J. F., Wells, J. C., Loos, R. J., Martin, B. W., et al. (2012). Correlates of physical activity: Why are some people physically active and others not? *The Lancet*, 380(9838), 25–71.
- Baumeister, R. F., & Vonasch, A. J. (2015). Uses of self-regulation to facilitate and restrain addictive behavior. *Addictive Behaviors*, 44, 3–8.
- Beattie, M. (1986). *Codependent no more: How to stop controlling others and start caring for yourself*. New York: Ballentine Books.
- Beattie, M., & Longabaugh, R. (1999). General and alcohol-specific social support following treatment. *Addictive Behaviors*, 24(5), 593–606.
- Beck, A. T., Wright, F. D., Newman, C. F., & Liese, B. S. (1993). *Cognitive therapy of substance abuse*. New York: Guilford Press.
- Begleiter, H., & Porjesz, B. (1999). What is inherited in the predisposition toward alcoholism?: A proposed model. *Alcoholism: Clinical and Experimental Research*, 23, 1125–1135.
- Beitman, B. D., Beck, N. C., Deuser, W., Carter, C., Davidson, J., & Maddock, R. (1994). Patient stages of change predicts outcome in a panic disorder medication trial. *Anxiety*, 1, 64–69.
- Belding, M., Iguchi, M., & Lamb, R. J. (1996). Stages of change in methadone maintenance: Assessing the convergent validity of two measures. *Psychology of Addictive Behaviors*, 10, 157–166.
- Bell, R. P., Foxe, J. J., Nierenberg, J., Hoptman, M. J., & Garavan, H. (2011). Assessing white matter integrity as a function of abstinence duration in former cocaine-dependent individuals. *Drug and Alcohol Dependence*, 114(3), 159–168.
- Bell, R., Foxe, J., Ross, L., & Garavan, H. (2014). Intact inhibitory control processes in abstinent drug abusers: Part 1. A functional neuroimaging study in former cocaine addicts. *Neuropharmacology*, 82, 143–150.
- Bellack, A. S., & DiClemente, C. C. (1999). Treating substance abuse among patients with schizophrenia. *Psychiatric Services*, 50(1), 75–80.
- Bellack, A. S., Gearon, J., & DiClemente, C. C. (2001, May). *The process of change in substance abuse in schizophrenia*. Poster presented at the International Congress on Schizophrenia, Whistler, British Columbia, Canada.
- Bennett, M. E., Bellack, A. S., Brown, C. H., & DiClemente, C. (2009). Substance dependence and remission in schizophrenia: A comparison of schizophrenia and affective disorders. *Addictive Behaviors*, 34(10), 806–814.
- Benowitz, N. L. (2008). Neurobiology of nicotine addiction: Implications for smoking cessation treatment. *American Journal of Medicine*, 121(4), 301–307.
- Bernstein, J., Bernstein, E., Tassiopoulos, K., Heeren, T., Levenson, S., & Hingson, R. (2005). Brief motivational intervention at a clinic visit reduces cocaine and heroin use. *Drug and Alcohol Dependence*, 77, 49–59.
- Bickel, W., Johnson, M., Koffarnus, M., Mackillop, J., & Murphy, J. (2014). The behavioral economics of substance use disorder: Reinforcement pathologies and their repair. *Annual Review of Clinical Psychology*, 10, 641–677.
- Bickel, W. K., Moody, L., & Higgins, S. T. (2016). Some current dimensions of the behavioral economics of health-related behavior change. *Preventive Medicine*, 92, 1–23.

- Bickel, W. K., & Potenza, M. N. (2006). The forest and the trees: Addiction as a complex self-organizing system. In W. R. Miller & K. M. Carroll (Eds.), *Rethinking substance abuse: What the science shows, and what we should do about it* (pp. 8–24). New York: Guilford Press.
- Blomqvist, O., Hernandez-Avila, C. A., Burleson, J. A., Ashraf, A., & Kranzler, H. R. (2003). Self-efficacy as a predictor of relapse during treatment for alcohol dependence. *Addictive Disorders and Their Treatment*, 2, 135–145.
- Blume, A. W., & Schmalings, K. B. (1997). Specific classes of symptoms predict readiness to change scores among dually diagnosed patients. *Addictive Behaviors*, 22(5), 625–630.
- Bobo, J. K., & Husten, C. S. (2000). Sociocultural influences on smoking and drinking. *Alcohol Research and Health World*, 24, 225–232.
- Botvin, G. J., Baker, E., Dusenbury, L., Botvin, E. M., & Diaz, T. (1995). Long-term follow-up results of a randomized drug abuse prevention trial in a white middle-class population. *Journal of the American Medical Association*, 273(14), 1106–1112.
- Bowen, A., & Trotter, R. (1995). HIV risk in intravenous drug users and crack cocaine smokers: Predicting stage of change for condom use. *Journal of Consulting and Clinical Psychology*, 63, 238–248.
- Bowen, S., Witkiewitz, K., Clifasefi, S. L., Grow, J., Chawla, N., Hsu, S. H., et al. (2014). Relative efficacy of mindfulness-based relapse prevention, standard relapse prevention, and treatment as usual for substance use disorders: A randomized clinical trial. *JAMA Psychiatry*, 71(5), 547–556.
- Brandon, T. H., Vidrine, J. I., & Litvin, E. B. (2007). Relapse and relapse prevention. *Annual Review of Clinical Psychology*, 3, 257–284.
- Breslin, K. T., Reed, M. R., & Malone, S. B. (2003). A holistic approach to substance abuse treatment. *Journal of Psychoactive Drugs*, 35(2), 247–251.
- Brister, H. A., Sher, K., & Fromme, K. (2011). 21st birthday drinking and associated physical consequences and behavioral risks. *Psychology of Addictive Behaviors*, 25, 573–582.
- Brook, J. S., Brook, D. W., Zhang, C. S., & Cohen, P. (2009). Pathways from adolescent parent–child conflict to substance use disorders in the fourth decade of life. *American Journal on Addictions*, 18(3), 235–242.
- Brooks-Russell, A., Conway, K. P., Danping, L., Xie, Y., Vullo, G. C., Li, K., et al. (2015). Dynamic patterns of adolescent substance use: Results from a nationally representative sample of high school students. *Journal of Studies on Alcohol and Drugs*, 76(6), 962–970.
- Brown, E. C., Catalano, R. F., Fleming, C. B., Haggerty, K. P., & Abbott, R. D. (2005). Adolescent substance use outcomes in the Raising Healthy Children project: A two-part latent growth curve analysis. *Journal of Consulting and Clinical Psychology*, 73(4), 699–710.
- Brown, S. (1985). *Treating the alcoholic: A developmental model of recovery*. New York: Wiley.
- Brown, S. A. (1993). Recovery patterns in adolescent substance abuse. In J. S. Baer, G. A. Marlatt, & R. J. McMahon (Eds.), *Addictive behaviors across the lifespan: Prevention, treatment and policy issues* (pp. 161–183). Newbury Park, CA: SAGE.
- Brown, S. A., Carello, P. D., Vik, P. W., & Porter, R. J. (1998). Change in alcohol effect and self-efficacy expectancies during addiction treatment. *Substance Abuse*, 19(4), 155–168.
- Brown, S. A., Goldman, M. S., & Christiansen, B. A. (1985). Do alcohol expectancies mediate drinking patterns of adults. *Journal of Consulting and Clinical Psychology*, 53, 512–519.

- Brown, S. A., Goldman, M. S., Inn, A., & Anderson, L. R. (1980). Expectations of reinforcement from alcohol: Their domain and relation to drinking patterns. *Journal of Consulting and Clinical Psychology, 48*, 419–426.
- Brown, S. A., Brumback, T., Tomlinson, K., Cummins, K., Thompson, W. K., Nagel, B. J., et al. (2015). The National Consortium on Alcohol and Neurodevelopment (NCANDA): A multisite study of adolescent development and substance use. *Journal of Studies on Alcohol and Drugs, 76*(6), 895–908.
- Brown, V. B., Melchior, L. A., Panter, A. T., Slaughter, R., & Huba, G. J. (2000). Women's steps of change and entry into drug abuse treatment: A multidimensional stages of change model. *Journal of Substance Abuse Treatment, 18*(3), 231–240.
- Brown, V. B., Ridgely, S. M., Pepper, R. M. S., Levine, L. S., & Ryglewicz, H. (1989). The dual crisis: Mental illness and substance abuse. *American Psychologist, 44*(3), 565–569.
- Brownell, K., Marlatt, G. A., Lichtenstein, E., & Wilson, C. T. (1986). Understanding and preventing relapse. *American Psychologist, 41*, 765–782.
- Bryk, A. S., & Raudenbush, S. W. (1987). Application of hierarchical linear models to assessing change. *Psychological Bulletin, 101*, 147–158.
- Buchman, D., Skinner, W., & Illes, J. (2010). Negotiating the relationship between addiction, ethics, and brain science. *American Journal of Bioethics Neuroscience, 1*, 36–45.
- Burk, W. J., van der Vorst, H., Kerr, M., & Stattin, H. (2012). Alcohol use and friendship dynamics: Selection and socialization in early-, middle-, and late-adolescent peer networks. *Journal of Studies on Alcohol and Drugs, 73*, 89–98.
- Cadoret, R. J. (1992). Genetic and environmental factors in the initiation of drug use and the transition to abuse. In M. Glantz & R. Pickens (Eds.), *Vulnerability to drug abuse* (pp. 99–113). Washington, DC: American Psychological Association.
- Callaghan, R. C., Veldhuizen, S., Jeysingh, T., Orlan, C., Graham, C., Kakouris, G., et al. (2014). Patterns of tobacco-related mortality among individuals diagnosed with schizophrenia, bipolar disorder, or depression. *Journal of Psychiatric Research, 48*, 102–110.
- Cappell, H., & Greeley, J. (1987). Alcohol and tension reduction: An update on research and theory. In H. T. Blane & K. E. Leonard (Eds.), *Psychological theories of drinking and alcoholism* (pp. 15–89). New York: Guilford Press.
- Carbonari, J. P., & DiClemente, C. C. (2000). Using Transtheoretical Model profiles to differentiate levels of alcohol abstinence success. *Journal of Consulting and Clinical Psychology, 68*(5), 810–817.
- Carbonari, J. P., DiClemente, C. C., & Sewell, K. B. (1999). Stage transitions and the Transtheoretical “stages of change” model of smoking cessation. *Swiss Journal of Psychology, 58*(2), 134–144.
- Carey, K. B., Purnine, M. M., Maisto, S. A., & Carey, M. P. (1999). Assessing readiness to change substance abuse: A critical review of instruments. *Clinical Psychology: Science and Practice, 6*, 245–266.
- Carey, K. B., Purnine, M. M., Maisto, S. A., Carey, M. P., & Barnes, K. L. (1999). Decisional balance regarding substance use among persons with schizophrenia. *Community Mental Health Journal, 35*(4), 289–299.
- Carey, K. B., Scott-Sheldon, L. A. J., Elliott, J. C., Garey, L., & Carey, M. P. (2012). Face-to-face versus computer-delivered alcohol interventions for college drinkers: A meta-analytic review, 1998 to 2010. *Clinical Psychology Review, 32*(8), 690–697.
- Carey, R. J., Carrera, M. P., & Damianopolous, E. N. (2014). A new proposal for drug conditioning with implications for drug addiction: The Pavlovian

- two-step from delay to trace conditioning. *Behavioural Brain Research*, 275, 150–156.
- Carlson, R. G. (2006). Ethnography and applied substance misuse research: Anthropological and cross-cultural factors. In W. R. Miller & K. M. Carroll (Eds.), *Rethinking substance abuse: What the science shows, and what we should do about it* (pp. 201–222). New York: Guilford Press.
- Carney, M. M., & Kivlahan, D. R. (1995). Motivational subtypes among veterans seeking substance abuse treatment: Profiles based on stages of change. *Psychology of Addictive Behaviors*, 9, 1135–1142.
- Carney, T., & Myers, B. (2012). Effectiveness of early interventions for substance-using adolescents: Findings from a systematic review and meta-analysis. *Substance Abuse Treatment, Prevention and Policy*, 7, 25–39.
- Carroll, K. M., Connors, G. J., Cooney, N. L., DiClemente, C. C., Donovan, D. M., Kadden, R. R., et al. (1998). Internal validity of Project MATCH treatments: Discriminability and integrity. *Journal of Consulting and Clinical Psychology*, 66, 290–303.
- Carter, B. L., & Tiffany, S. T. (1990). Meta-analysis of cue reactivity in addiction research. *Addiction*, 94(3), 327–340.
- Carver, C. S., & Scheier, M. F. (2016). Self-regulation of action and affect. In K. D. Vohs & R. F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications* (3rd ed., pp. 3–23). New York: Guilford Press.
- Cassin, S. E., & von Ranson, K. M. (2005). Personality and eating disorders: A decade in review. *Clinical Psychology Review*, 25(7), 895–916.
- Castaneda, C. (1984). *The fire within*. New York: Simon & Schuster.
- Castellanos-Ryan, N., O’Leary-Barrett, M., & Conrod, P. J. (2013). Substance use in childhood and adolescence: A brief overview of developmental processes and their clinical implications. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 22(1), 41–46.
- Castro, F. G., Proescholdbell, R. J., Abeita, L., & Rodriquez, D. (1999). Ethnic and cultural minority groups. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 499–526). New York: Oxford University Press.
- Catalano, R. F., & Hawkins, J. D. (1996). The social development model: A theory of antisocial behavior. In J. D. Hawkins (Ed.), *Delinquency and crime: Current theories* (pp. 14–97). New York: Cambridge University Press.
- Center for Behavioral Health Statistics and Quality. (2015). Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health (HHS Publication No. SMA 1-4927, NSDUH Series H-50). Washington, DC: U.S. Government Printing Office.
- Center for Substance Abuse Treatment. (1999). *Enhancing motivation for change in substance abuse treatment* (Treatment Improvement Protocol [TIP] 35; DHHS Publication No. SMA 99-3354). Washington, DC: U.S. Government Printing Office.
- Cermak, T. L. (1986). *Diagnosing and treating co-dependence: A guide for professionals who work with chemical dependents, their spouses and children*. Minneapolis, MN: Johnson Institute Books.
- Chassin, L., Curran, P. J., Hussong, A. M., & Colder, C. R. (1996). The relations of parent alcoholism to adolescent substance use: A longitudinal follow-up study. *Journal of Abnormal Psychology*, 105, 70–80.
- Chassin, L., Presson, C. C., Pitts, S. C., & Sherman, S. J. (2000). The natural history of cigarette smoking from adolescence to adulthood: Multiple trajectories and their psychosocial correlates. *Health Psychology*, 19(3), 223–231.
- Chassin, L., Presson, C. C., Sherman, S. J., & Edwards, D. A. (1990). The natural

- history of cigarette smoking: Predicting young adult outcomes from adolescent smoking. *Health Psychology*, 9(6), 701–716.
- Chassin, L., Presson, C. C., Sherman, S. J., & Edwards, D. A. (1991). Four pathways to young-adult smoking status: Adolescent social-psychological antecedents in a Midwestern community sample. *Health Psychology*, 10, 409–418.
- Chassin, L., Presson, C. C., Sherman, S. J., Seo, D.-C., & Macy, J. T. (2010). Implicit and explicit attitudes predict smoking cessation: Moderating effects of experienced failure to control smoking and plans to quit. *Psychology of Addictive Behaviors*, 24(4), 670–679.
- Cheong, Y., Yong, H. H., & Borland, R. (2007). Does how you quit affect success?: A comparison between abrupt and gradual methods using data from the international tobacco control policy evaluation study. *Nicotine and Tobacco Research*, 9(8), 801–810.
- Childress, A. R. (2006). What can human brain imaging tell us about vulnerability to addiction and to relapse. In W. R. Miller & K. M. Carroll (Eds.), *Rethinking substance abuse: What the science shows, and what we should do about it* (pp. 4–60). New York: Guilford Press.
- Childress, A. R., McElgin, W., Mozley, D., Reivich, M., & O'Brien, C. P. (1996). Brain correlates of cue-induced cocaine and opiate craving. *Society for Neuroscience Abstracts*, 22(2), 933.
- Cialdini, R. B. (1988). *Influence: Science and practice* (2nd ed.). Boston: Scott Foresman.
- Cialdini, R. B. (2007). *Influence: The psychology of persuasion*. New York: Harper Collins.
- Cisler, R. A., & Zweben, A. (1999). Development of a composite measure for assessing alcohol treatment outcome: Operationalization and validation. *Alcoholism: Clinical and Experimental Research*, 23(2), 263–271.
- Clayton, R. R. (1992). Transitions in drug use: Risk and protective factors. In M. Glantz & R. Pickens (Eds.), *Vulnerability to drug abuse* (pp. 15–51). Washington, DC: American Psychological Association.
- Clayton, R., Cattarello, A., & Johnstone, B. (1996). The effectiveness of Drug Abuse Resistance Education (Project DARE): 5-year follow-up results. *Preventive Medicine*, 25, 307–318.
- Cohen, S., & Lichtenstein, E. (1990). Partner behaviors that support quitting smoking. *Journal of Consulting and Clinical Psychology*, 58, 304–309.
- Cohn, A., Villanti, A., Richardson, A., Rath, J. M., Williams, V., Stanton, V., et al. (2015). The association between alcohol, marijuana use, and new and emerging tobacco products in a young adult population. *Addictive Behaviors*, 48, 79–88.
- Collins, L. M., & Horn, J. L. (1991). *Best methods for the analysis of change*. Washington, DC: American Psychological Association.
- Collins, L. M., & Lanza, S. T. (2010). *Latent class and latent transition analysis: With applications in the social, behavioral, and health sciences*. New York: Wiley.
- Collins, L. M., & Sayer, A. G. (2001). *New methods for the analysis of change*. Washington, DC: American Psychological Association.
- Collins, R. L., Lapp, W. M., Emmons, K. M., & Isaac, L. M. (1990). Endorsement and strength of alcohol expectancies. *Journal of Studies on Alcoholism*, 51, 336–342.
- Collins, R. L., Parks, G. A., & Marlatt, G. A. (1985). Social determinants of alcohol consumption: The effects of social interaction and model status on the self-administration of alcohol. *Journal of Consulting and Clinical Psychology*, 53, 189–200.

- Connors, G. J., DiClemente, C. C., Dermen, K. H., Kadden, R., Carroll, K. M., & Frone, M. R. (2000). Predicting the therapeutic alliance in alcoholism treatment. *Journal of Studies on Alcohol*, 61(1), 139–149.
- Connors, G., DiClemente, C. C., Velasquez, M., & Donovan, D. (2013). *Substance abuse treatment and the stages of change* (2nd ed.). New York: Guilford Press.
- Connors, G. J., Donovan, D. M., & DiClemente, C. C. (2001). *Substance abuse treatment and the stages of change: Selecting and planning interventions*. New York: Guilford Press.
- Connors, G. J., Longabaugh, R., & Miller, W. R. (1996). Looking forward and back to relapse: Implications for research and practice. *Addiction*, 91, S191–S196.
- Connors, G. J., Maisto, G. A., & Dermen, K. H. (1992). Alcohol-related expectancies and their applications to treatment. In R. R. Watson (Ed.), *Alcohol abuse treatment: Drug and alcohol abuse reviews 3* (pp. 203–231). Totowa, NJ: Humana Press.
- Connors, G. J., & Tarbox, A. R. (1985). Macroenvironmental factors as determinants of substance use and abuse. In M. Galizio & S. A. Maisto (Eds.), *Determinants of substance abuse: Biological, psychological, and environmental factors* (pp. 283–314). New York: Plenum Press.
- Conrod, P. J., & Nikolaou, K. (2016). Annual research review: On the developmental neuropsychology of substance use disorders. *Journal of Child Psychology and Psychiatry*, 57(3), 371–394.
- Consumer's Corner. (2001). Please don't label me crazy. *Dual Networker*, 2(1), 26–27.
- Coombs, R. H., & Zeidonis, D. (Eds.). (1995). *Handbook on drug abuse prevention*. New York: Allyn & Bacon.
- Cooney, N. L., Babor, T. F., DiClemente, C. C., & Del Boca, F. K. (2002). Clinical and scientific implications of Project MATCH. In T. F. Babor & F. K. Del Boca (Eds.), *Treatment matching in alcoholism* (pp. 222–237). London: Cambridge University Press.
- Costa, P. T., & McCrae, R. R. (1992). Normal personality inventories in clinical assessment: General requirements and potential for using the NEO Personality Inventory. *Psychological Assessment*, 4, 5–13.
- Cox, W. M. (1985). Personality correlates of substance abuse. In M. Galizio & S. A. Maisto (Eds.), *Determinants of substance abuse: Biological, psychological and environmental factors* (pp. 209–246). New York: Plenum Press.
- Craighead, W. E., Craighead, L. W., & Ilardi, S. S. (1995). Behavior therapies in historical perspective. In B. Bongar & L. E. Beutler (Eds.), *Comprehensive textbook of psychotherapy* (pp. 64–83). New York: Oxford University Press.
- Crouch, T. B., DiClemente, C. C., & Pitts, S. C. (2015). End-of-treatment abstinence self-efficacy, behavioral processes of change, and posttreatment drinking outcomes in Project MATCH. *Psychology of Addictive Behaviors*, 29(3), 706–15.
- Culbert, K. M., Racine, S. E., & Klump, K. L. (2015). Research review: What we have learned about the causes of eating disorders—a synthesis of sociocultural, psychological, and biological research. *Journal of Child Psychology and Psychiatry*, 56(11), 1141–1164.
- Curry, S. J., Kristal, A. R., & Bowen, D. J. (1992). An application of the stage model of behavior change to dietary fat reduction. *Health Education Research*, 7(1), 97–105.
- Curry, S., Wagner, E. H., & Grothaus, L. C. (1990). Intrinsic and extrinsic motivation for smoking cessation. *Journal of Consulting and Clinical Psychology*, 58, 310–316.
- Daniels, J. W. (1998). *Coping with the health threat of smoking: An analysis of the Precontemplation stage of smoking cessation*. Unpublished doctoral

- dissertation, Psychology Department, University of Maryland, College Park, MD.
- Danzer, G. (2013). Helping adolescents just say no to drugs: A multidimensional family therapeutic approach. *Harvard Review of Psychiatry*, 21(4), 175–180.
- Darling, N. (2011, August 12). Scaffolding is good: Hovering is bad: A guide for parents [Blog]. *Psychology Today*.
- Davidson, L., & White, W. (2007). The concept of recovery as an organizing principle for integrating mental health and addiction services. *Journal of Behavioral Health Services and Research*, 34, 109–120.
- Davies, G., Elison, S., Ward, J., & Laudet, A. (2015). The role of lifestyle in perpetuating substance use disorder: The Lifestyle Balance Model. *Substance Abuse Treatment, Prevention and Policy*, 10(1), 1–8.
- Dawson, D. A., Goldstein, R. B., & Grant, B. F. (2007). Rates and correlates of relapse among individuals in remission from DSM-IV alcohol dependence: A 3-year follow-up. *Alcoholism: Clinical and Experimental Research*, 31(12), 2036–2045.
- Dawson, D. A., Grant, B. F., & Li, T. K. (2005). Quantifying the risk associated with exceeding recommended drinking limits. *Alcoholism: Clinical and Experimental Research*, 29(5), 902–908.
- Dawson, D. A., Grant, B. F., Stinson, F. S., Chou, P. S., Boji, H., & Ruan, W. J. (2006). Recovery from DSM-IV alcohol dependence. *Alcohol Research and Health*, 29(2), 131–142.
- Dawson, D., Grant, B. F., Stinson, F. S., Chou, P. S., Huang, B., & Ruan, W. (2005). Recovery from DSM-IV alcohol dependence: United States, 2001–2002. *Addiction*, 100, 281–292.
- Deas, D., Riggs, P., Langenbucher, J., Goldman, M., & Brown, S. (2000). Adolescents are not adults: Developmental considerations in alcohol users. *Alcoholism: Clinical and Experimental Research*, 24(2), 232–237.
- Degenhardt, L., Dierker, L., Chiu, W. T., Medina-Mora, M., Neumark, Y., Sampson, N., et al. (2010). Evaluating the drug use “gateway” theory using cross-national data: Consistency and associations of the order of initiation of drug use among participants in the WHO World Mental Health Surveys. *Drug and Alcohol Dependence*, 108(1/2), 84–97.
- Del Boca, F. K., Babor, T. F., & McRee, B. (1994). Reliability enhancement and estimation in multisite clinical trials. *Journal of Studies on Alcohol Supplement*, 12, 130–136.
- Delahanty, J. C., DiClemente, C. C., Havas, S., & Langenberg, P. (2008). Smoking status and stages of change for dietary behaviors among WIC women. *American Journal of Health Behaviors*, 32(6), 583–593.
- Delahanty, J., DiClemente, C. C., & Pitts, S. (2007, March). *Validating measures of stages of smoking initiation among underage adolescents*. Poster presented at the annual meeting of the Society of Behavioral Medicine, Washington, DC.
- Delahanty, J. C., DiClemente, C. C., Van Orden, O., & Fiedler, R. (2012, March). *Sequence and patterns of smoking, alcohol, and marijuana initiation in a statewide survey of adolescents*. Poster presented at the annual meeting of the Society for Research on Nicotine and Tobacco, Houston, TX.
- DeLeon, G. (1999). Therapeutic communities. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 306–327). New York: Oxford University Press.
- DeMartini, K. S., Devine, E. G., DiClemente, C. C., Martin, D. J., Ray, L. A., & O'Malley, S. S. (2014). Predictors of pretreatment commitment to abstinence: Results from the COMBINE study. *Journal of Studies on Alcohol and Drugs*, 75, 438–446.

- DiClemente, C. C. (1978). *Perceived chance processes in the successful cessation of smoking and the maintenance of that change*. Unpublished doctoral dissertation, South Kingston, RI.
- DiClemente, C. C. (1981). Self-efficacy and smoking cessation maintenance: A preliminary report. *Cognitive Therapy and Research*, 5(2), 175–187.
- DiClemente, C. C. (1991). Motivational interviewing and the stages of change. In W. R. Miller & S. Rollnick, *Motivational interviewing: Preparing people to change addictive behavior* (pp. 191–202). New York: Guilford Press.
- DiClemente, C. C. (1993). Alcoholics Anonymous and the structure of change. In W. R. Miller & B. McCrady (Eds.), *Alcoholics Anonymous and research* (pp. 79–97). New Brunswick, NJ: Rutgers Center of Alcohol Studies.
- DiClemente, C. C. (1994). If behaviors change, can personality be far behind? In T. Heatherton & J. Weinberger (Eds.), *Can personality change?* (pp. 175–198). Washington, DC: American Psychological Association.
- DiClemente, C. C. (1999a). Motivation for change: Implications for substance abuse. *Psychological Science*, 10(3), 209–213.
- DiClemente, C. C. (1999b). Prevention and harm reduction for chemical dependency: A process perspective [Special issue]. *Clinical Psychology Review*, 19(4), 473–486.
- DiClemente, C. C. (2005). Conceptual models and applied research: The ongoing contribution of the transtheoretical model. *Journal of Addictions Nursing*, 16, 5–12.
- DiClemente, C. C. (2006). Natural change and the troublesome use of substances. In W. R. Miller & K. M. Carroll (Eds.), *Rethinking substance abuse: What the science shows, and what we should do about it* (pp. 81–96). New York: Guilford Press.
- DiClemente, C. C. (2007). Mechanisms, determinants and process of change in the modification of drinking behavior. *Alcoholism: Clinical and Experimental Research*, 31(Suppl. 3), 13S–20S.
- DiClemente, C. C. (2015). Change is a process not a product: Reflections on pieces to the puzzle of behavior change. *Substance Use and Misuse*, 50(8–9), 1225–1228.
- DiClemente, C. C., Bellino, L. E., & Neavins, T. M. (1999). Motivation for change and alcoholism treatment. *Alcohol Health and Research World*, 23(2), 86–92.
- DiClemente, C. C., Carbonari, J. P., Daniels, J. W., Donovan, D. M., Bellino, L. E., & Neavins, T. M. (2001). Self-efficacy as a matching hypothesis: Causal chain analysis. In R. Longabaugh & P. W. Wirtz (Eds.), *Project MATCH: A priori matching hypotheses, results, and mediating mechanisms* (NIAAA Project MATCH Monograph Series, Vol. 8, pp. 239–259). Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.
- DiClemente, C. C., Carbonari, J. P., Montgomery, R., & Hughes, S. (1994). The Alcohol Abstinence Self-Efficacy Scale. *Journal of Studies on Alcohol*, 55, 141–148.
- DiClemente, C. C., Carbonari, J. P., & Velasquez, M. M. (1992). Alcoholism treatment mismatching from a process of change perspective. In R. R. Watson (Ed.), *Treatment of drug and alcohol abuse* (pp. 115–142). Totowa, NJ: Humana Press.
- DiClemente, C. C., Carbonari, J., Zweben, A., Morrel, T., & Lee, R. E. (2001). Motivation hypothesis causal chain analysis. In R. Longabaugh & P. W. Wirtz (Eds.), *Project MATCH: A priori matching hypotheses, results, and mediating mechanisms* (NIAAA Project MATCH Monograph Series, Vol. 8, pp. 206–222). Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.
- DiClemente, C. C., Carroll, K. M., Connors, G. J., & Kadden, R. M. (1994). Process

- assessment in treatment matching research. *Journal of Studies on Alcohol Supplement*, 12, 156–162.
- DiClemente, C. C., Carroll, K. M., Miller, W. R., Connors, G. J., & Donovan, D. M. (2002). A look inside treatment: Therapist effects, the therapeutic alliance, and the process of intentional behavior change. In T. F. Babor & F. K. Del Boca (Eds.), *Treatment matching in alcoholism* (pp. 166–183). London: Cambridge University Press.
- DiClemente, C. C., & Crisafulli, M. (2017). Alcohol relapse and change needs a broader view than counting drinks. *Alcoholism: Clinical and Experimental Research*, 41(2), 266–269.
- DiClemente, C. C., Delahanty, J. C., & Fiedler, R. M. (2010). The journey to the end of smoking. *American Journal of Preventive Medicine*, 38(Suppl. 3), S418–S428.
- DiClemente, C. C., Delahanty, J., Garay, M., Greene, P., Holmgren, M., & Fielder, J. D. (2010, February). *Stages of smoking initiation and prevalence of alcohol use in a statewide survey of adolescents*. Poster presented at the annual meeting of the Society for Research on Nicotine and Tobacco, Baltimore, MD.
- DiClemente, C. C., Delahanty, J. C., Havas, S. W., & Van Orden, O. R. (2015). Understanding self-reported staging of dietary behavior in low-income women. *Journal of Health Psychology*, 20(6), 53–74.
- DiClemente, C. C., Dolan-Mullen, P., & Windsor, R. (2000). The process of pregnancy smoking cessation: Implications for interventions. *Tobacco Control*, 9(Suppl. 3), 16–21.
- DiClemente, C. C., Doyle, S. R., & Donovan, D. (2009). Predicting treatment seekers readiness to change their drinking behavior in the COMBINE study. *Alcoholism Clinical and Experimental Research*, 33(5), 879–892.
- DiClemente, C. C., Fairhurst, S. K., & Piotrowski, N. A. (1995). The role of self-efficacy in the addictive behaviors. In J. Maddux (Ed.), *Self-efficacy, adaptation and adjustment: Theory, research and application* (pp. 109–142). New York: Plenum Press.
- DiClemente, C. C., Ferentz, K., & Velasquez, M. M. (2004). Health behavior change and the problem of “noncompliance.” In L. J. Haas (Ed.), *Handbook of primary care psychology* (pp. 157–172). New York: Oxford University Press.
- DiClemente, C. C., & Hughes, S. O. (1990). Stages of change profiles in alcoholism treatment. *Journal of Substance Abuse*, 2, 217–235.
- DiClemente, C. C., Kofeldt, M., & Gemmell, L. (2011). Motivational enhancement. In M. Galanter & H. D. Kleber (Eds.), *Psychotherapy for the treatment of substance abuse* (pp. 125–152). Arlington, VA: American Psychiatric Publishing.
- DiClemente, C. C., Marinilli, A. S., Singh, M., & Bellino, L. E. (2001). The role of feedback in the process of health behavior change. *American Journal of Health Behavior*, 25, 217–227.
- DiClemente, C. C., Nidecker, M., & Bellack, A. S. (2008). Motivation and the stages of change among individuals with severe mental illness and substance abuse disorders. *Journal of Substance Abuse Treatment*, 34, 25–35.
- DiClemente, C. C., Norwood, A. E., Gregory, W. H., Travaglini, L., Graydon, M., & Corno, C. (2016). Consumer-centered, collaborative, and comprehensive care: The core essentials of recovery-oriented system of care. *Journal of Addictions Nursing*, 27(2), 94–100.
- DiClemente, C. C., & Prochaska, J. O. (1982). Self-change and therapy change of smoking behavior: A comparison of processes of change in cessation and maintenance. *Addictive Behaviors*, 7, 133–142.
- DiClemente, C. C., & Prochaska, J. O. (1985). Processes and stages of change: Coping and competence in smoking behavior change. In S. Shiffman & T. A. Wills (Eds.), *Coping and substance abuse* (pp. 319–342). New York: Academic Press.

- DiClemente, C. C., & Prochaska, J. O. (1998). Toward a comprehensive, transtheoretical model of change: Stages of change and addictive behaviors. In W. R. Miller & N. Heather (Eds.), *Treating addictive behaviors* (2nd ed., pp. 3–24). New York: Plenum Press.
- DiClemente, C. C., Prochaska, J. O., & Gibertini, M. (1985). Self-efficacy and the stages of self-change smoking. *Cognitive Therapy and Research*, 9(2), 181–200.
- DiClemente, C. C., Prochaska, J. O., Fairhurst, S., Velicer, W. F., Velasquez, M., & Rossi, J. (1991). The process of smoking cessation: An analysis of Precontemplation, Contemplation, and Preparation. *Journal of Consulting and Clinical Psychology*, 59(2), 295–304.
- DiClemente, C. C., Schlundt, D., & Gemmell, L. (2004). Readiness and stages of change in addiction treatment. *American Journal on Addictions*, 13, 103–119.
- DiClemente, C., Schumann, K., Greene, P., & Earley, M. (2011). A Transtheoretical Model perspective on change: Process focused interventions for mental health and substance abuse. In D. Cooper (Ed.), *Principles of intervention in mental health-substance use*. London: Radcliff.
- DiClemente, C. C., & Scott, C. W. (1997). Stages of change: Interaction with treatment compliance and involvement. In L. S. Onken, J. D. Blaine, & J. J. Boren (Eds.), *Beyond the therapeutic alliance: Keeping the drug-dependent individual in treatment* (NIDA Monograph No. 165, pp. 131–156). Rockville, MD: National Institute on Drug Abuse.
- DiClemente, C. C., Story, M., & Murray, K. (2000). On a roll: The process of initiation and cessation of problem gambling among adolescents. *Journal of Gambling Studies*, 16(2/3), 289–313.
- DiClemente, C. C., & Velasquez, M. (2002). Motivational interviewing and the stages of change. In W. R. Miller & S. Rollnick, *Motivational interviewing: Preparing people for change* (2nd ed., pp. 201–216). New York: Guilford Press.
- Dingwall, K. M., & Cairney, S. (2011). Recovery from central nervous system changes following volatile substance misuse. *Substance Use and Misuse*, 46(Suppl. 1), 73–83.
- Dodes, L. M., & Khantzian, E. J. (1991). Individual psychodynamic psychotherapy. In R. J. Frances & S. I. Miller (Eds.), *Clinical textbook of addictive disorders* (pp. 391–405). New York: Guilford Press.
- Dolan-Mullen, P., DiClemente, C., Velasquez, M., Timpson, S., Groff, J., Carbonari, J., et al. (2000). Enhanced prenatal case management for low income smokers. *Tobacco Control*, 9(Suppl. 3), 75–77.
- Donovan, D. M. (1996). Assessment issues and domains in the prediction of relapse. *Addiction*, 91(Suppl.), S29–S36.
- Donovan, D. M., & Chaney, E. F. (1985). Alcoholic relapse: Models and methods. In G. A. Marlatt & J. R. Gordon (Eds.), *Relapse prevention: Maintenance strategies in the treatment of addictive behaviors* (pp. 351–416). New York: Guilford Press.
- Donovan, D. M., Kadden, R. M., DiClemente, C. C., Carroll, K. M., Longabaugh, R., Zweben, A., et al. (1994). Issues in the selection and development of therapies in alcoholism treatment matching research. *Journal of Studies on Alcohol Supplement*, 12, 138–148.
- Donovan, D. M., & Marlatt, G. A. (Eds.). (1988). *Assessment of addictive behaviors*. New York: Guilford Press.
- Donovan, D. M., & Mattson, M. E. (1994). Alcoholism treatment matching research: Methodological and clinical approaches. *Journal of Studies on Alcohol*, 12(Suppl.), 5–14.
- Donovan, D. M., & Rosengren, D. B. (1999). Motivation for behavior change and

- treatment among substance abusers. In J. A. Tucker, D. M. Donovan, & G. A. Marlatt (Eds.), *Changing addictive behavior: Bridging clinical and public health strategies* (pp. 127–159). New York: Guilford Press.
- Drake, R. E., Essock, S. M., Shaner, A., Carey, K. B., Minkoff, K., Kola, L., et al. (2001). Implementing dual diagnosis services for clients with severe mental illness. *Psychiatric Services*, 52(4), 469–476.
- Drake, R. E., & Mueser, K. T. (2000). Psychosocial approaches to dual diagnosis. *Schizophrenia Bulletin*, 26, 105–118.
- Drake, R. E., Mueser, K. T., & Brunette, M. F. (2007). Management of persons with co-occurring severe mental illness and substance use disorder: Program implications. *World Psychiatry*, 6(3), 131–136.
- Drake, R. E., Mueser, K. T., Brunette, M. F., & McHugo, G. J. (2004). A review of treatments for clients with severe mental illness and co-occurring substance use disorder. *Psychiatric Rehabilitation Journal*, 27, 360–374.
- Drobes, D. J., & Thomas, S. E. (1999). Assessing craving for alcohol. *Alcohol Research and Health*, 23(3), 17–86.
- Dunn, M. E., & Goldman, M. S. (1996). Empirical modeling of an alcohol expectancy memory network in elementary school children as a function of grade. *Experimental and Clinical Pharmacology*, 4(2), 209–217.
- Dunn, N. J., Seilhamer, R. A., Jacob, T., & Whalen, M. (1992). Comparisons of retrospective and current reports of alcoholics and their spouses on drinking behavior. *Addictive Behaviors*, 17(6), 543–555.
- Durazzo, T. C., Mon, A., Pennington, D., Abé, C., Gazdzinski, S., & Meyerhoff, D. J. (2014). Interactive effects of chronic cigarette smoking and age on brain volumes in controls and alcohol-dependent individuals in early abstinence. *Addiction Biology*, 19(1), 132–143.
- Ebaugh, H. R. F. (1988). *Becoming an ex: The process of role exit*. Chicago: University of Chicago Press.
- Ebersole, D. S., Miller-Day, M., & Raup-Krieger, J. (2014). Do actions speak louder than words?: Adolescent interpretations of parental substance use. *Journal of Family Communication*, 14(4), 328–351.
- Edens, J. F., & Willoughby, F. W. (2000). Motivational patterns of alcohol dependent patients: A replication. *Psychology of Addictive Behaviors*, 14(4), 397–400.
- Eisenberg, N., Smith, C. L., & Spinrad, T. L. (2016). Effortful control: Relations with emotion regulation, adjustment, and socialization in childhood. In K. D. Vohs & R. F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory and applications* (3rd ed., pp. 458–478). New York: Guilford Press.
- El-Bassel, N., Schilling, R. F., Ivanoff, A., Chen, D. R., Hanson, M., & Bidassie, B. (1998). Stages of change profiles among incarcerated drug-abusing women. *Addictive Behaviors*, 23(3), 389–394.
- Ellis, A., & Dryden, W. (1987). *The practice of rational-emotive therapy*. New York: Springer.
- Engels, R. C. M. E., Hermans, R., van Baaren, R. B., Hollenstein, T., & Bot, S. M. (2009). Alcohol portrayal on television affects actual drinking behavior. *Alcohol and Alcoholism*, 44(3), 244–249.
- Erikson, E. H. (1963). *Childhood and society* (2nd ed.). New York: Norton.
- Etter, J. F., Perneger, T. V., & Ronchi, A. (1997). Distributions of smokers by stage: International comparisons and associations with smoking prevalence. *Preventive Medicine*, 26, 580–585.
- Fachini, A., Aliane, P., Martinez, E., & Furtado, E. (2012). Efficacy of brief alcohol screening intervention for college students (BASICS): A meta-analysis of randomized controlled trials. *Substance Abuse Treatment, Prevention and Policy*, 7, 40–49.

- Fareed, A., Vayalapalli, S., Stout, S., Casarella, J., Drexler, K., & Bailey, S. P. (2011). Effect of methadone maintenance treatment on heroin craving: A literature review. *Journal of Addictive Diseases*, 30, 27–38.
- Farkas, A. J., Pierce, J. P., Zhu, S. H., Rosbrook, B., Gilpin, E. A., Berry, C., et al. (1996). Addiction versus stages of change models in predicting smoking cessation. *Addiction*, 91(9), 1271–1280.
- Feingold, D., Fox, J., Rehm, J., & Lev-Ran, S. (2015). Natural outcome of cannabis use disorder: A 3-year longitudinal follow-up. *Addiction*, 110(12), 1963–1974.
- Feldman, H. L., Damron, D., Anliker, J., Ballesteros, M., Langenberg, P., DiClemente, C. C., et al. (2000). The effect of Maryland WIC 5-a-day promotion program on participant's stage of change for fruit and vegetable consumption. *Health Education and Behavior*, 27(5), 649–663.
- Ferguson, S. G., Shiffman, S., Gitchell, J. G., Sembower, M. A., & West, R. (2009). Unplanned quit attempts—results from a U.S. sample of smokers and ex-smokers. *Nicotine and Tobacco Research*, 11(7), 827–832.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Field, M., & Cox, W. M. (2008). Attentional bias in addictive behaviors: A review of its development, causes, and consequences. *Drug and Alcohol Dependence*, 97(1), 1–20.
- Field, M., Munafo, M. R., & Franken, I. H. (2009). A meta-analytic investigation of the relationship between attentional bias and subjective craving in substance abuse. *Psychological Bulletin*, 135(4), 589–607.
- Finney, J. W., Moos, R. H., & Humphreys, K. (1999). A comparative evaluation of substance abuse treatment: II. Linking proximal outcomes of 1-step and cognitive-behavioral treatment to substance use. *Alcoholism Clinical and Experimental Research*, 23(3), 537–544.
- Finney, J. W., Moos, R. H., & Timko, C. (2013). The course of treated and untreated substance use disorders: Remission, resolution, relapse, and mortality. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 108–134). New York: Oxford University Press.
- Fiore, M. C., Jorenby, D. E., & Baker, T. B. (1997). Smoking cessation: Principles and practice based upon the AHCPR Guideline, 1996. *Annals of Behavioral Medicine*, 19(3), 213–219.
- Firestein, S. (2016). *Failure: Why science is so successful*. New York: Oxford University Press.
- Fishbain, D. A., Cole, B., Lewis, J., Rosomoff, H. L., & Rosomoff, R. S. (2008). What percentage of chronic nonmalignant pain patients exposed to chronic opioid analgesic therapy develop abuse/addiction and/or aberrant drug-related behaviors?: A structured evidence-based review. *Pain Medicine*, 9(4), 444–459.
- Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. New York: Psychology Press.
- Fitzgerald, T. E., & Prochaska, J. O. (1989). Non-progressing profiles in smoking cessation: What keeps people refractory to self-change? *Journal of Substance Abuse*, 2, 93–111.
- Fletcher, A. M. (2001). *Sober for good: New solutions for drinking problems—Advice from those who have succeeded*. New York: Houghton Mifflin.
- Fowler, T., Lifford, K., Shelton, K., Rice, F., Thapar, A., Neale, M. C., et al. (2007). Exploring the relationship between genetic and environmental influences on initiation and progression of substance use. *Addiction*, 102(3), 413–422.
- Freud, S. (1949). *An outline of psychoanalysis* (J. Strachey, Trans.). New York: Norton.
- Freyer-Adam, J., Baumann, S., Schnuerer, I., Haberecht, K., Bischof, G., John, U.,

- et al. (2014). Does stage tailoring matter in brief alcohol interventions for job seekers?: A randomized controlled trial. *Addiction*, 109(11), 1845–1856.
- Fromme, K., & Dunn, M. E. (1992). Alcohol expectancies, social and environmental cues as determinants of drinking and perceived reinforcement. *Addictive Behaviors*, 17, 167–177.
- Fromme, K., Stroot, E., & Kaplan, D. (1993). Comprehensive effects of alcohol: Development and psychometric assessment of a new expectancy questionnaire. *Psychological Assessment*, 5(1), 19–26.
- Fuster, D., Cheng, D. M., Wang, N., Bernstein, J. A., Palfai, T. P., Alford, D. P., et al. (2016). Brief intervention for daily marijuana users identified by screening in primary care: A subgroup analysis of the ASPIRE randomized clinical trial. *Substance Abuse*, 37(2), 336–342.
- Galanter, M. (1999). *Network therapy for alcohol and drug abuse*. New York: Guilford Press.
- Galizio, M., & Maisto, S. A. (Eds.). (1985). *Determinants of substance abuse: Biological, psychological and environmental factors*. New York: Plenum Press.
- Garavan, H., Brennan, K. L., Hester, R., & Whelan, R. (2013). The neurobiology of successful abstinence. *Current Opinion in Neurobiology*, 23(4), 668–674.
- Garbusow, M., Sebold, M., Beck, A., & Heinz, A. (2014). Too difficult to stop: Mechanisms facilitating relapse in alcohol dependence. *Neuropsychobiology*, 70(2), 103–110.
- Gawronski, B., & Bodenhausen, G. V. (2006). Associative and propositional processes in evaluation: An integrative review of implicit and explicit attitude change. *Psychological Bulletin*, 132(5), 692–731.
- Giancola, P. R., & Tarter, R. E. (1999). Executive cognitive functioning and risk for substance abuse. *Psychological Science*, 10(3) 203–205.
- Gladwell, M. (2000). *The tipping point: How little things can make a big difference*. Boston: Little Brown.
- Glantz, M., & Pickens, R. (Eds.). (1992). *Vulnerability to drug abuse*. Washington, DC: American Psychological Association.
- Glanz, K., Patterson, R. E., Kristal, A. R., DiClemente, C. C., Heimendinger, J., Linnan, L., et al. (1994). Stages of change in adopting healthy diets: Fat, fiber and correlates of nutrient intake. *Health Education Quarterly*, 21(4), 499–519.
- Goldbach, J., Tanner-Smith, E., Bagwell, M., & Dunlap, S. (2014). Minority stress and substance use in sexual minority adolescents: A meta-analysis. *Prevention Science*, 15(3), 350–363.
- Goldberg, D. N., Hoffman, A. M., Farinha, M. F., Marder, D. C., Tinson-Mitchem, L., Burton, D., et al. (1994). Physician delivery of smoking cessation advice based on the stages of change model. *American Journal of Preventive Medicine*, 10(5), 267–274.
- Goldman, M. S. (1999). Risk for substance abuse: Memory as a common etiological pathway. *Psychological Science*, 10(3), 196–198.
- Goldman, M. S., Del Boca, F. K., & Darkes, J. (1999). Alcohol expectancy theory: The application of cognitive neuroscience. In K. E. Leonard & H. T. Blane (Eds.), *Psychological theories of drinking and alcoholism* (2nd ed., pp 203–246). New York: Guilford Press.
- Gordis, E. (2000, July). From genes to geography: The cutting edge of alcohol research. *Alcohol Alert* (No. 48). Rockville MD: National Institute on Alcohol Abuse and Alcoholism.
- Grant, B. F., & Dawson, D. A. (1999). Alcohol, drug use, abuse, and dependence: Classification, prevalence and comorbidity. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 9–29). New York: Oxford University Press.

- Grant, J. D., Vergés, A., Jackson, K. M., Trull, T. J., Sher, K. J., & Bucholz, K. K. (2012). Age and ethnic differences in the onset, persistence and recurrence of alcohol use disorder. *Addiction*, 107(4), 756–776.
- Greaves, G. B. (1980). An existential theory of drug dependence. In D. J. Lettieri, M. Sayers, & H. W. Pearson (Eds.), *Theories on drug abuse: Selected contemporary perspectives* (NIDA Research Monograph No. 30, pp. 24–28; DHHS Publication No. ADM 80–967). Rockville, MD: National Institute on Drug Abuse.
- Greene, P. A. (2014). How and when implicit attitudes about smoking affect decision making in the personal process of smoking cessation (Doctoral dissertation). Retrieved from <http://gradworks.umi.com/36/37/3637322.html>.
- Greenfield, T. K., Ye, Y., Bond, J., Kerr, W. C., Nayak, M. B., Kaskutas, L. A., et al. (2014). Risk of alcohol use disorders related to drinking patterns in the U.S. general population. *Journal of Studies on Alcohol and Drugs*, 75, 319–327.
- Griffin, J. A., Gilliland, S. S., Perez, G., Helitzer, D., & Carter, J. S. (1999). Participant satisfaction with a culturally appropriate diabetes education program: The Native American Diabetes Project. *Diabetes Education*, 25(3), 351–363.
- Grimley, D. M., Riley, G. E., Bellis, J. M., & Prochaska, J. O. (1993, December). Assessing the stages of change and decision making for contraceptive use for the prevention of pregnancy, sexually transmitted diseases, and acquired immunodeficiency syndrome. *Health Education Quarterly*, 20(4), 455–470.
- Gritz, E. R., Prokhorov, A. V., Hudmon, K. S., Chamberlain, R. M., Taylor, W. C., DiClemente, C. C., et al. (1998). Cigarette smoking in a multiethnic population of youth: Methods and baseline findings. *Preventive Medicine*, 27(3), 365–384.
- Groh, D. R., Jason, L. A., & Keys, C. B. (2008). Social network variables in Alcoholics Anonymous: A literature review. *Clinical Psychology Review*, 28(3), 430–450.
- Grothues, J., Bischof, G., Reinhardt, S., Hapke, U., Meyer, C., John, U., et al. (2005). Intention to change drinking behaviour in general practice patients with problematic drinking and comorbid depression or anxiety. *Alcohol and Alcoholism*, 40(5), 394–400.
- Guerrini, I., Quadri, G., & Thomson, A. D. (2014). Genetic and environmental interplay in risky drinking in adolescents: A literature review. *Alcohol and Alcoholism*, 49(2), 138–142.
- Hagedorn, H. (2000). *Application of the Transtheoretical Model of behavior change to cessation of alcohol use in patients with schizophrenia*. Unpublished doctoral dissertation, Department of Psychology, University of Maryland, College Park, MD.
- Hajek, P., Stead, L. F., West, R., Jarvis, M., Hartmann-Boyce, J., & Lancaster, T. (2013, August 20). Relapse prevention interventions for smoking cessation. *Cochrane Database of Systematic Reviews*, No. 8.
- Hall, P. (2011). A biopsychosocial view of sex addiction. *Sexual and Relationship Therapy*, 26(3), 217–228.
- Hanson, K. L., Winward, J. L., Schweinsburg, A. D., Medina, K. L., Brown, S. A., & Tapert, S. F. (2010). Longitudinal study of cognition among adolescent marijuana users over three weeks of abstinence. *Addictive Behaviors*, 35(11), 970–976.
- Hasin, D. S., & Grant, B. F. (2015). The National Epidemiological Survey on Alcohol and Related Conditions (NESARC) waves 1 and 2: Review and summary of findings. *Social Psychiatry and Psychiatric Epidemiology*, 50, 1609–1640.
- Hasin, D., Hatzenbuehler, M., & Waxman, R. (2006). Genetics of substance use disorders. In W. R. Miller & K. M. Carroll (Eds.), *Rethinking substance abuse:*

- What the science shows, and what we should do about it* (pp. 61–80). New York: Guilford Press.
- Hasin, D. S., Wall, M., Keyes, K. M., Cerdá, M., Schulenberg, J., O'Malley, P. M., et al. (2015). Medical marijuana laws and adolescent marijuana use in the USA from 1991 to 2014: Results from annual, repeated cross-sectional surveys. *The Lancet*, 2(7), 601–608.
- Haug, N. (2002). *Motivational enhancement for smoking cessation among pregnant drug abusing women*. Unpublished doctoral dissertation, University of Maryland, College Park, MD.
- Havas, S., Anliker, J., Greenberg, D., Block, G., Block, T., Blik, C., et al. (2003). Final results of the Maryland food for life program. *Preventive Medicine*, 37, 405–416.
- Hayes, A. F., & Preacher, K. J. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, 67, 451–470.
- Hayes, S. C., & Levin, M. (2012). *Mindfulness and acceptance for addictive behaviors*. Oakland, CA: New Harbinger.
- Hays, J. T., Croghan, I. T., Schroeder, D. R., Burke, M. V., Ebbert, J. O., McFadden, D. D., et al. (2011). Residential treatment compared with outpatient treatment for tobacco use and dependence. *Mayo Clinic Proceedings*, 86(3), 203–209.
- Heath, B., Wise Romero, P., & Reynolds K. (2013, March). *A standard framework for levels of integrated healthcare*. Washington, DC: SAMHSA-HRSA Center for Integrated Health Solutions.
- Heather, N. (2014). Toward an understanding of the effective mechanisms of alcohol brief interventions. *Alcoholism: Clinical and Experimental Research*, 38(3), 626–628.
- Heather, N., Honekopp, J., & Smailes, D. on behalf of the UKATT Research Team. (2009). Progressive stage transition does mean getting better: A further test of the Transtheoretical Model in recovery from alcohol problems. *Addiction*, 104, 949–958.
- Heather, N., & McCambridge, J. (2013). Post-treatment stage of change predicts 12-month outcome of treatment for alcohol problems. *Alcohol and Alcoholism*, 48(3), 329–336.
- Heather, N., Miller, W. R., & Greeley, J. (Eds.). (1991). *Self-control and the addictive behaviours*. Sydney: Maxwell MacMillan.
- Heather, N., Rollnick, S., & Bell, A. (1993). Predictive validity of the Readiness to Change to Change Questionnaire. *Addiction*, 88, 1667–1677.
- Heather, N., & Segal, G. (2017). (Eds.). *Addiction and choice: Retaining the relationship*. Oxford, UK: Oxford University Press.
- Hennessy, E., & Tanner-Smith, E. (2015). Effectiveness of brief school-based interventions for adolescents: A meta-analysis of alcohol use prevention programs. *Prevention Science*, 16(3), 463–474.
- Hesselbrock, M. N., Hesselbrock, V. M., & Epstein, E. E. (1999). Theories of etiology of alcohol and other drug use disorders. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 50–74). New York: Oxford University Press.
- Hicks, B. M., Kreuger, R. F., Iacono, W. G., McGue, M., & Patrick, C. J. (2004). Family transmission and heritability of externalizing disorders—a twin-family study. *Archives of General Psychiatry*, 61(9), 922–928.
- Higgins, S. T. (1997). The influence of alternative reinforcers on cocaine use and abuse: A brief review. *Pharmacology, Biochemistry and Behavior*, 57, 419–427.
- Higgins, S. T. (1999). Potential contributions of the community reinforcement approach and contingency management to broadening the base of substance

- abuse treatment. In J. A. Tucker, D. M. Donovan, & G. A. Marlatt (Eds.), *Changing addictive behavior: Bridging clinical and public health strategies* (pp. 283–306). New York: Guilford Press.
- Hilton, T. F., & Pilonis, P. A. (2015). The key to individualized addiction treatment is comprehensive assessment and monitoring of symptoms and behavior change. *Behavioral Sciences*, 5(4), 477–495.
- Hinson, R. E. (1985). Individual differences in tolerance and relapse: A Pavlovian conditioning perspective. In M. Galizio & S. A. Maisto (Eds.), *Determinants of substance abuse: Biological, psychological and environmental factors* (pp. 101–124). New York: Plenum Press.
- Hirschi, T. (2004). Self-control and crime. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 537–552). New York: Guilford Press.
- Holden, C. (2002, February 8). Neuroscience: Drugs and placebos look alike in the brain. *Science*, 295(5557), 947.
- Holder, H. (1999). Prevention aimed at the environment. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 573–594). New York: Oxford University Press.
- Horn, D. (1976). A model for the study of personal choice behavior. *International Journal of Health Education*, 19, 89–98.
- Hudmon, K. S., Prokhorov, A. V., Koehly, L. M., DiClemente, C. C., & Gritz, E. R. (1997). Psychometric properties of the decisional balance scale and temptations to try smoking inventory in adolescents. *Journal of Child and Adolescent Substance Abuse*, 6(3), 1–18.
- Huh, D., Mun, E., Larimer, M. E., White, H. R., Ray, A., Rhew, I. C., et al. (2015). Brief motivational interventions for college student drinking may not be as powerful as we think: An individual participant-level data meta-analysis. *Alcoholism: Clinical and Experimental Research*, 39(5), 919–931.
- Hummel, A., Shelton, K. H., Heron, J., Moore, L., & Bree, M. (2013). A systematic review of the relationships between family functioning, pubertal timing and adolescent substance use. *Addiction*, 108(3), 487–496.
- Hunt, W. A., Barnett, L. W., & Branch, L. G. (1971). Relapse rates in addiction programs. *Journal of Clinical Psychology*, 90, 586–600.
- Hurley, S. F., Jolley, D. J., & Kaldor, J. M. (1997). Effectiveness of needle-exchange programmes for prevention of HIV infection. *The Lancet*, 349, 1797–1800.
- Hurt, R. D., Dale, L. C., McClain, F. L., Eberman, K. M., Offord, K. P., Bruce, B. K., et al. (1992). A comprehensive model for treatment of nicotine dependence in a medical setting. *Medical Clinics of North America*, 76, 495–514.
- Iacono, W. G., Malone, S. M., & McGue, M. (2008). Behavioral disinhibition and the development of early onset addiction: Common and specific influences. *Annual Review of Clinical Psychology*, 4, 325–348.
- Ilegen, M. A., Wilbourne, P. L., Moos, B. S., & Moos, R. H. (2008). Problem-free drinking over 16 years among individuals with alcohol use disorders. *Drug and Alcohol Dependence*, 92, 116–122.
- Institute of Medicine. (1990). *Broadening the base of treatment for alcohol problems*. Washington, DC: National Academy Press.
- Institute of Medicine. (2001). *Clearing the smoke: Assessing the science base for tobacco harm reduction*. Washington, DC: National Academy Press.
- Institute of Medicine. (2006). *Preventing HIV infection among injecting drug users in high-risk countries: An assessment of the evidence*. Washington, DC: National Academies Press.
- Isenhardt, C. (1994). Motivational subtypes in an inpatient sample of substance abusers. *Addictive Behaviors*, 19, 463–475.
- Iudicello, J., Woods, S. P., Vigil, O., Scott, J. C., Cherner, M., Heaton, R. K., et al.

- (2010). Longer term improvement in neurocognitive functioning and affective distress among methamphetamine users who achieve stable abstinence. *Journal of Clinical And Experimental Neuropsychology*, 32(7), 704–718.
- Janis, I. L., & Mann, L. (1977). *Decision making*. New York: Free Press.
- Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development*. New York: Academic Press.
- Jessor, R., & Jessor, S. (1980). A social-psychological framework for studying drug use. In U.S. Department of Health and Human Services, *Theories on drug abuse: Contemporary perspectives* (NIDA Research Monograph No. 30, pp. 102–109; DHHS Publication No. ADM 80-967). Washington, DC: U.S. Government Printing Office.
- Jessor, R., Van Den Bos, J., Vanderryn, J., Costa, F. M., & Turbin, M. S. (1995). Protective factors in adolescent problem behavior: Moderator effects and developmental change. *Developmental Psychology*, 31, 923–933.
- Jewell, T., Blessit, E., Stewart, C., Simic, M., & Eisler, I. (2016). Family therapy for child and adolescent eating disorders: A critical review. *Family Process*, 55(3), 577–594.
- Joe, G. W., Simpson, D. D., & Broome, K. M. (1998). Effects of readiness for drug abuse treatment on client retention and assessment of process. *Addiction*, 93(8), 1177–1190.
- Johnson, B. A., Ait-Daoud, N., Seneviratne, C., Roache, J. D., Javors, M. A., Wang, X., et al. (2011). Pharmacogenetic approach at the serotonin transporter gene as a method of reducing the severity of alcohol drinking. *American Journal of Psychiatry*, 168(3), 265–275.
- Johnson, B. A., Roache, J. D., Javors, M. A., DiClemente, C. C., Cloninger, C. R., Prihoda, T. J., et al. (2000). Ondansetron for reduction of drinking among biologically predisposed alcoholic patients. *Journal of the American Medical Association*, 284(8), 963–971.
- Joseph, J., Breslin, C., & Skinner, H. (1999). Critical perspectives on the Trans-theoretical Model and stages of change. In J. A. Tucker, D. M. Donovan, & G. A. Marlatt (Eds.), *Changing addictive behavior: Bridging clinical and public health strategies* (pp. 160–190). New York: Guilford Press.
- Jungerman, F. S., Andreoni, S., & Laranjeira, R. (2007). Short term impact of same intensity but different duration interventions for cannabis users. *Drug and Alcohol Dependence*, 90(2), 120–127.
- Kandel, D. B. (1975). Stages in adolescent involvement in drug use. *Science*, 190, 912–914.
- Kandel, D. B., & Davies, M. (1992). Progression to regular marijuana involvement: Phenomenology and risk factors for near daily use. In M. Glantz & R. Pickens (Eds.), *Vulnerability to drug abuse* (pp. 211–254). Washington, DC: American Psychological Association.
- Kaplan, H. B., & Johnson, R. J. (1992). Relationships between circumstances surrounding initial illicit drug use and escalation of use: Moderating effects of gender and early adolescent experiences. In M. Glantz & R. Pickens (Eds.), *Vulnerability to drug abuse* (pp. 299–358). Washington, DC: American Psychological Association.
- Kaplan, L. (2008). *The role of recovery support services in recovery-oriented systems of care* (DHHS Publication No. SMA 08-4315). Rockville, MD: Center for Substance Abuse Services, Substance Abuse and Mental Health Services Administration.
- Keller, S., Nigg, C. R., Jakle, C., Baum, E., & Basler, H. (1999). Self-efficacy, decisional balance and the stages for smoking cessation in a German sample. *Swiss Journal of Psychology*, 5(2), 101–110.
- Kendler, K. S., Myers, J., & Prescott, C. A. (2007). Specificity of genetic and

- environmental risk factors for symptoms of cannabis, cocaine, alcohol, caffeine, and nicotine dependence. *Archives of General Psychiatry*, 64(11), 1313–1320.
- Keyes, M. A., Iacono, W. G., & McGue, M. (2007). Early onset problem behavior, young adult psychopathology, and contextual risk. *Twin Research and Human Genetics*, 10(1), 4–53.
- Khantzian E. J. (1980). An ego/self theory of substance dependence: A contemporary psychoanalytic perspective. In U.S. Department of Health and Human Services, *Theories on drug abuse: Contemporary perspectives* (NIDA Research Monograph No. 30, pp. 29–33; DHHS Publication No. ADM 80-967). Washington, DC: U.S. Government Printing Office.
- Khurana, A., Romer, D., Betancourt, L. M., Brodsky, N. L., Giannetta, J. M., & Hurt, H. (2015). Experimentation versus progression in adolescent drug use: A test of an emerging neurobehavioral imbalance model. *Development and Psychopathology*, 27(3), 901–913.
- Kiluk, B. D., Dreifuss, J. A., Weiss, R. D., Morgenstern, J., & Carroll, K. M. (2012). The Short Inventory of Problems-Revised (SIP-R): Psychometric properties within a large, diverse sample of substance use disorder treatment seekers. *Psychology of Addictive Behaviors*, 27, 307–314.
- King T., & DiClemente, C. C. (1993, November). *A decisional balance measure for assessing and predicting drinking behavior*. Poster presented at the 26th annual convention of the Association for Advancement of Behavior Therapy, Atlanta, GA.
- Kirchner, T. R., Shiffman, S., & Wileyto, E. P. (2012). Relapse dynamics during smoking cessation: Recurrent abstinence violation effects and lapse–relapse progression. *Journal of Abnormal Psychology*, 121, 187–197.
- Kirisci, L., Tarter, R. E., Ridenour, T., Reynolds, M., & Vanyukov, M. (2013). Longitudinal modeling of transmissible risk in boys who subsequently develop cannabis use disorder. *American Journal of Drug and Alcohol Abuse*, 39(3), 180–185.
- Kirshenbaum, A. P., Olsen, D. M., & Bickel, W. K. (2009). A quantitative review of the ubiquitous relapse curve. *Journal of Substance Abuse Treatment*, 36, 8–17.
- Klingemann, H. (1991). The motivation for change from problem alcohol and heroin use. *British Journal of Addiction*, 86, 727–744.
- Klingemann, H., & Sobel, L. C. (Eds.). (2007) *Promoting self-change from addictive behaviors: Practical implications for policy, prevention and treatment*. New York: Springer.
- Klingemann, H., Sobell, M. B., & Sobell, L. C. (2010). Continuities and changes in self-change research. *Addiction*, 5(9), 151–158.
- Knight, R. G., & Longamore, B. E. (1994). *Clinical neuropsychology of alcoholism*. East Sussex, UK: Erlbaum.
- Kodner, D. L. (2008). All together now: A conceptual exploration of integrated care. *Healthcare Quarterly*, 13, 6–15.
- Kohler, C. C., Grimley, D., & Reynolds, K. (1999). Theoretical approaches guiding the development and implementation of health promotion. In J. M. Raczynski & R. J. DiClemente (Eds.), *Handbook of health promotion and disease prevention* (pp. 23–50). New York: Kluwer Academic/Plenum.
- Koob, G. F. (2008). A role for brain stress systems in addiction. *Neuron*, 59, 11–34.
- Koob, G. F. (2013). Neuroscience of addiction. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 17–35). New York: Oxford University Press.
- Koob, G. F., Ahmed, S. H., Boutrel, B., Chen, S. A., Kenny, P. J., Markou, A., et al. (2000). Neurobiological mechanisms in the transition from drug use to drug dependence. *Neuroscience Biobehavioral Review*, 27(8), 739–749.

- Koob, G. F., & Le Moal, M. (2008). Addiction and the brain antireward system. *Annual Review of Psychology*, 59, 29–53.
- Koob, G. F., & Volkow, N. D. (2010). Neurocircuitry of addiction. *Neuropsychopharmacology*, 35, 217–238.
- Korcha, R. A., Cherpitel, C. J., Moskalewicz, J., Swiatkiewicz, G., Bond, J., & Ye, Y. (2012). Readiness to change, drinking, and negative consequences among Polish SBIRT patients. *Addictive Behaviors*, 37(3), 287–292.
- Korotitsch, W. J., & Nelson-Gray, R. O. (1999). An overview of self-monitoring research in assessment and treatment. *Psychological Assessment*, 11(4), 415–425.
- Kovac, V. B. (2013). The more the ‘merrier’: A multi-sourced model of addiction. *Addiction Research and Theory*, 21(1), 19–32.
- Kreuger, R. F., Hicks, B. M., Patrick, C. J., Carlson, S. R., Iacono, W. G., & McGue, M. (2002). Etiological connections among substance dependence, antisocial behavior, and personality: Modeling the externalizing spectrum. *Journal of Abnormal Psychology*, 111(3), 411–424.
- Kreuter, M. W., Strecher, V. J., & Glassman, B. (1999). One size does not fit all: The case for tailoring print materials. *Annals of Behavioral Medicine*, 21(4), 276–283.
- Kuntsche, E., Knibbe, R., Engels, R., & Gmel, G. (2010). Being drunk to have fun or to forget problems? *European Journal of Psychological Assessment*, 26, 46–54.
- Kwako, L. E., Momenan, R., Litten, R. Z., Koob, G. F., & Goldman D. (2016). Addictions neuroclinical assessment: A neuroscience-based framework for addictive disorders. *Biological Psychiatry*, 80(3), 17–89.
- Lambert, M. J. (Ed.). (2013). *Bergin and Garfield’s handbook of psychotherapy and behavior change* (6th ed.). New York: Wiley.
- Landau, J., Garrett, J., Shea, R. R., Stanton, M. D., Brinkman-Sull, D., & Baciewicz, G. (2000). Strength in numbers: The ARISE method for mobilizing family and network to engage substance abusers in treatment. *American Journal of Drug and Alcohol Abuse*, 26(3), 379–398.
- Landau, J., Stanton, M. D., Brinkman-Sull, D., Ikle, D., McCormick, D., Garrett, J., et al. (2004). Outcomes with the ARISE approach to engaging reluctant drug- and alcohol-dependent individuals in treatment. *American Journal of Drug and Alcohol Abuse*, 30(4), 711–748.
- Larson, H., Overbeek, G., Granic, I., & Engels, R. C. (2012). The strong effect of other people’s drinking: Two experimental observation studies in a real bar. *American Journal on Addictions*, 21(2), 168–175.
- Lazarus, R., & Folkman, S. (1985). *Stress, appraisal and coping*. New York: Springer.
- Lee, R. (1998). *Understanding motivation for two kinds of physical activity among older adolescent college students*. Unpublished doctoral dissertation, University of Maryland, College Park, MD.
- Lee, R., & DiClemente, C. C. (2000). Ecological influences on exercise behavior and motivational readiness. *Annals of Behavioral Medicine*, 22, S213.
- Leeds, J., & Morgenstern, L. (1995). Psychoanalytic theories of substance abuse. In F. Rogers, D. S. Keller, & J. Morgenstern (Eds.), *Treating substance abuse: Theory and technique* (pp. 68–83). New York: Guilford Press.
- Leigh, B. C., & Stacy, A. W. (1993). Alcohol expectancies: Scale construction and predictive utility in higher order confirmatory models. *Psychological Assessment*, 5, 216–229.
- Leigh, B. C., & Stacy, A. W. (2004). Alcohol expectancies and drinking in different age groups. *Addiction*, 99(2), 215–227.

- Leonard, K. E., & Blane, H. T. (Eds.). (1999). *Psychological theories of drinking and alcoholism* (2nd ed.). New York: Guilford Press.
- Leonard, K. E., & Homish, G. G. (2008). Predictors of heavy drinking and drinking problems over the first 4 years of marriage. *Psychology of Addictive Behaviors*, 22(1), 25–35.
- Leshner, A. I. (1997). Addiction is a brain disease, and it matters. *Science*, 278, 45–47.
- Lettieri, D. J., Sayers, M., & Pearson, H. W. (Eds.). (1980). *Theories on drug abuse: Selected contemporary perspectives* (NIDA Research Monograph No. 30; DHHS Publication No. ADM 80-967). Rockville, MD: National Institute on Drug Abuse.
- Levitt, A., & Leonard, K. E. (2013). Relationship-specific alcohol expectancies and relationship-drinking contexts: Reciprocal influence and gender-specific effects over the first 9 years of marriage. *Psychology of Addictive Behaviors*, 27(4), 986–996.
- Lewis, M. (2015). *The biology of desire: Why addiction is not a disease*. Philadelphia: Public Affairs.
- Liepmann, M. R. (1993). Using family influence to motivate alcoholics to enter treatment: The Johnson Institute intervention approach. In T. J. O'Farrell (Ed.), *Treating alcohol problems: Marital and family interventions* (pp. 54–77). New York: Guilford Press.
- Litt, M. D., Kadden, R. M., Tennen, H., & Kabela-Cormier, E. (2016). Network support II: Randomized controlled trial of network support treatment and cognitive behavioral therapy for alcohol use disorder. *Drug and Alcohol Dependence*, 165, 203–212.
- Littell, J. H., & Girvin, H. (2002). Stages of change: A critique. *Behavior Modification*, 26, 223–273.
- Litten, R. Z., Allen, J., & Fertig, J. (1996). Pharmacotherapies for alcohol problems: A review with focus on developments since 1991. *Alcoholism: Clinical and Experimental Research*, 20(5), 859–876.
- Lohr, J. B., & Flynn, K. (1992). Smoking and schizophrenia. *Schizophrenia Research*, 8, 93–102.
- Longabaugh, R., & Magill, M. (2011). Recent advances in behavioral addiction treatments: Focusing on mechanisms of change. *Current Psychiatry Reports*, 13(5), 382–389.
- Longabaugh, R., & Wirtz, P. W. (Eds.). (2001). *Project MATCH: A priori matching hypotheses, results, and mediating mechanisms* (NIAAA Project MATCH Monograph Series, Vol. 8). Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.
- Longabaugh, R., Wirtz, P. W., Beattie, M. C., Noel, N., & Stout, R. (1995). Matching treatment focus to patient social investment and support: 18-month follow-up results. *Journal of Consulting and Clinical Psychology*, 63, 296–307.
- Longabaugh, R., Wirtz, P. W., Zweben, A., & Stout, R. (2001). Network support for drinking. In R. Longabaugh & P. W. Wirtz (Eds.), *Project MATCH: A priori matching hypotheses, results, and mediating mechanisms* (NIAAA Project MATCH Monograph Series, Vol. 8, pp. 260–275). Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.
- Longabaugh, R., Wirtz, P. W., Zywiak, W. H., & O'Malley, S. S. (2010). Network support as a prognostic indicator of drinking outcomes: The COMBINE study. *Journal of Studies on Alcohol and Drugs*, 71(6), 837–846.
- Longshore, D., Grills, C., & Annon, K. (1999). Effects of a culturally congruent intervention on cognitive factors related to drug-use recovery. *Substance Use and Misuse*, 34(9), 1223–1241.

- Lopez-Leon, M., & Raley, J. A. (2013). Developmental risks for substance use in adolescence: Age as risk factor. *Clinical Handbook of Adolescent Addiction*, 132–138.
- Lu, L., Liu, Y., Zhu, W., Shi, J., Liu, Y., Ling, W., et al. (2009). Traditional medicine in the treatment of drug addiction. *American Journal of Drug and Alcohol Abuse*, 35, 1–11.
- Lukoff, I. F. (1980). Toward a sociology of drug use. In U.S. Department of Health and Human Services, *Theories on drug abuse: Contemporary perspectives* (NIDA Research Monograph No. 30, pp. 201–211; DHHS Publication No. ADM 80-967). Washington, DC: U.S. Government Printing Office.
- Lundahl, B., & Burke, B. L. (2009). The effectiveness and applicability of motivational interviewing: A practice-friendly review of four meta-analyses. *Journal of Clinical Psychology*, 65(11), 1232–1245.
- Lynam, D. R., Milich, R., Zimmerman, R., Novak, S. P., Logan, T. K., Martin, C., et al. (1999). Project DARE: No effects at 10-year follow-up. *Journal of Consulting and Clinical Psychology*, 67, 467–471.
- MacCoun, R. J. (1998). Toward a psychology of harm reduction. *American Psychologist*, 53, 1199–1208.
- Mackillop, J., & Murphy, J. G. (2007). A behavioral economic measure of demand for alcohol predicts brief intervention outcomes. *Drug and Alcohol Dependence*, 89(2–3), 227–233.
- MacKinnon, D. P. (2008). *Introduction to statistical mediational analysis*. New York: Erlbaum/Taylor & Francis.
- Maisto, S. A., Carey, K. B., & Bradizza, C. M. (1999). Social learning theory. In K. E. Leonard & H. T. Blane (Eds.), *Psychological theories of drinking and alcoholism* (2nd ed., pp. 106–163). New York: Guilford Press.
- Maisto, S., Roos, C., Hallgren, K., Hutchison, D., Wilson, A., & Witkiewitz, K. (2016). Do alcohol relapse episodes during treatment predict long-term outcomes?: Investigating the validity of existing definitions of alcohol use disorder relapse. *Alcoholism Clinical and Experimental Research*, 40(10), 2180–2189.
- Mandyam, C., & Koob, G. (2012). The addicted brain craves new neurons: Putative role for adult-born progenitors in promoting recovery. *Trends in Neuroscience*, 35(4), 250–260.
- Mann, L. M., Chassin, L., & Sher, K. J. (1987). Alcohol expectancies and the risk for alcoholism. *Journal of Consulting and Clinical Psychology*, 55(3), 411–417.
- Marcus, B. H., Rossi, J. S., Selby, V. C., Niaura, R. S., & Abrams, D. B. (1992). The stages and processes of exercise adoption and maintenance in a worksite sample. *Health Psychology*, 11(6), 386–395.
- Marlatt, G. A., & Gordon, J. R. (Eds.). (1985). *Relapse prevention*. New York: Guilford Press.
- Marlatt, G. A., Larimer, M., & Witkiewitz, K. (Eds.). (2011). *Harm reduction* (2nd ed.). New York: Guilford Press.
- Marlatt, G. A., & Tapert, S. F. (1993). Harm reduction: Reducing the risks of addictive behaviors. In J. S. Baer, G. A. Marlatt, & R. J. McMahon (Eds.), *Addictive behaviors across the lifespan: Prevention, treatment and policy issues* (pp. 111–137). Newbury Park, CA: SAGE.
- Marlatt, G. A., & Witkiewitz, K. (2010). Update on harm reduction policy and intervention research. *Annual Review of Clinical Psychology*, 6, 591–606.
- Martinez, D., Carpenter, K. M., Liu, F., Slifstein, M., Broft, A., Friedman, A. C., et al. (2011). Imaging dopamine transmission in cocaine dependence: Link between neurochemistry and response to treatment. *American Journal of Psychiatry*, 168, 634–641.
- Masten, A. S., Coatsworth, J. D., Neemann, J., Gest, S. D., Tellegen, A., & Garmexy,

- N. (1995). The structure and coherence of competence from childhood through adolescence. *Child Development*, 66(6), 1635–1659.
- Mattson, M. E., Del Boca, F. K., Carroll, K. M., Cooney, N. L., DiClemente, C. C., Donovan, D., et al. (1998). Compliance with treatment and follow-up protocols in Project MATCH: Predictors and relationship to outcome. *Alcoholism: Clinical and Experimental Research*, 22(6), 1328–1339.
- Mayberg, H. S., Silva, J. A., Brannan, S. K., Tekell, J. L., Mahurin, R. K., McGinnis, S., et al. (2002). The functional neuroanatomy of the placebo effect. *American Journal of Psychiatry*, 159(5), 728–737.
- McBride, C. M., Curry, S. J., Lando, H. A., Pirie, P. L., Grothaus, L. C., & Nelson, J. C. (1999). Prevention of relapse in women who quit smoking during pregnancy. *American Journal of Public Health*, 89(5), 706–711.
- McCarty, D. (1985). Environmental factors in substance abuse: The microsetting. In M. Galizio & S. A. Maisto (Eds.), *Determinants of substance abuse: Biological, psychological and environmental factors* (pp. 247–291). New York: Plenum Press.
- McClellan, A. T., Luborsky, L., Woody, G. E., & O'Brien, C. P. (1980). An improved diagnostic evaluation instrument for substance abuse patients: The Addiction Severity Index. *Journal of Nervous and Mental Disease*, 168, 26–33.
- McCrary, B. S., & Epstein, E. E. (Eds.). (2013). *Addictions: A comprehensive guidebook* (2nd ed.). New York: Oxford University Press.
- McCrary, B. S., & Miller, W. R. (Eds.). (1993). *Research on Alcoholics Anonymous: Opportunities and alternatives*. New Brunswick, NJ: Rutgers Center of Alcohol Studies.
- McCrary, B. S., Owens, M. D., & Brovko, J. M. (2013). Couples and family treatment methods. In B. S. McCrary & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 454–481). New York: Oxford University Press.
- McEachan, B. A., Taylor, N., Harrison, R., Lawton, R., Gardner, P., & Conner, M. (2016). Meta-analysis of the reasoned action approach to understanding health behaviors. *Annals of Behavior Medicine*, 50, 592–612.
- McGue, M., & Irons, D. E. (2013). Etiology. In B. S. McCrary & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 36–72). New York: Oxford University Press.
- McGue, M., Pickens, R. W., & Svikiel, D. S. (1992). Sex and age effects on the inheritance of alcohol problems: A twin study. *Journal of Abnormal Psychology*, 101(1), 3–17.
- McKay, J. R., Franklin, T. R., Patapis, N., & Lynch, K. G. (2006). Conceptual, methodological, and analytical issues in the study of relapse. *Clinical Psychology Review*, 26, 109–127.
- McLellan, A., Arndt, I., Metzger, D., Woody, G., & O'Brien, C. (1993). The effects of psychosocial services in substance abuse treatment. *Journal of the American Medical Association*, 269(15), 1953–1959.
- McLellan, A. T., Grissom, G., Zanis, D., & Brill, P. (1997). Problem–service “matching” in addiction treatment: A prospective study in four programs. *Archives of General Psychiatry*, 54, 730–735.
- McLellan, A. T., Hagan, T. A., Meyers, K., Randall, M., & Durell, J. (1997). “Intensive” outpatient substance abuse treatment: Comparisons with “traditional” outpatient treatment. *Journal of Addictive Diseases*, 16(2), 57–84.
- McLellan, A. T., Luborsky, L., & O'Brien, C. P. (1986). Alcohol and drug abuse treatment in three different populations: Is there improvement and is it predictable? *American Journal of Drug and Alcohol Abuse*, 12, 101–120.
- McLellan, A. T., Woody, G. E., Metzger, D. J., McKay, J., Alterman, A. I., & O'Brien, C. P. (1995). Evaluating the effectiveness of treatments for substance

- use disorders: Reasonable expectations, appropriate comparisons. In D. Fox (Ed.), *The Milbank Foundation volume on health policy issues*. New York: Milbank Foundation Press.
- Mee-Lee, D. (Ed.). (2013). *The ASAM criteria: Treatment criteria for addictive, substance-related, and co-occurring conditions*. Bethesda, MD: American Society of Addiction Medicine.
- Mellers, B. A., Schwartz, A., & Cooke, A. D. J. (1998). Judgment and decision-making. *Annual Review of Psychology*, 49, 447–477.
- Mericle, A. A. (2014). The role of social networks in recovery from alcohol and drug abuse. *American Journal of Drug and Alcohol Abuse*, 40(3), 179–180.
- Merikangas, K. R., Rounsaville, B. J., & Prusoff, B. A. (1992). Familial factors in vulnerability to drug abuse. In M. Glantz & R. Pickens (Eds.), *Vulnerability to drug abuse* (pp. 75–98). Washington, DC: American Psychological Association.
- Meyers, R. J., & Miller, M. R. (2001). *A community reinforcement approach to addiction treatment*. New York: Cambridge University Press.
- Meyers, R. J., & Smith, J. E. (1995). *Clinical guide to alcohol treatment: The community reinforcement approach*. New York: Guilford Press.
- Meyers, R. J., Smith, J. E., Serna, B., & Belon, K. E. (2013). Community reinforcement approaches: CRA and CRAFT. In P. Miller (Ed.), *Interventions for addiction: Comprehensive addictive behaviors and disorders* (pp. 47–56). San Diego, CA: Academic Press.
- Miller, E. T., Turner, A. P., & Marlatt, G. A. (2001). The harm reduction approach to the secondary prevention of alcohol problems in adolescents and young adults. In P. M. Monti, S. M. Colby, & T. A. O’Leary (Eds.), *Adolescents, alcohol and substance abuse: Reaching teens through brief interventions* (pp. 58–79). New York: Guilford Press.
- Miller, P. M., Smith, G. T., & Goldman, M. S. (1990). Emergence of alcohol expectancies in childhood: A possible critical period. *Journal of Studies on Alcohol*, 51(4), 343–349.
- Miller, W. R. (1985). Motivation for treatment: A review with special emphasis on alcoholism. *Psychological Bulletin*, 98(1), 84–107.
- Miller, W. R., Benefield, R. G., & Tonigan, J. S. (1993). Enhancing motivation for change in problem drinking: A controlled comparison of two therapist styles. *Journal of Consulting and Clinical Psychology*, 61(3), 455–461.
- Miller, W. R., & Brown, J. M. (1991). Self-regulation as a conceptual basis for the prevention and treatment of addictive behaviors. In N. Heather, W. R. Miller, & J. Greeley (Eds.), *Self-control and the addictive behaviours*. New York: Maxwell Macmillan Australia.
- Miller, W. R., & Carroll, K. M. (2006). *Rethinking substance abuse: What the science shows, and what we should do about it*. New York: Guilford Press.
- Miller, W. R., & C’deBaca, J. (2001). *Quantum change*. New York: Guilford Press.
- Miller, W. R., & Del Boca, F. K. (1994). Measurement of drinking behavior using the Form 90 family of instruments. *Journal of Studies on Alcohol Supplement*, 12, 112–118.
- Miller, W. R., & Heather, N. (Eds.). (1998). *Treating addictive behaviors* (2nd ed.). New York: Plenum Press.
- Miller, W. R., & Hester, R. K. (1986). The effectiveness of alcoholism treatment: What research reveals. In W. R. Miller & N. Heather (Eds.), *Treating addictive behaviors: Processes of change* (pp. 121–174). New York: Plenum Press.
- Miller, W. R., & Kurtz, E. (1994). Models of alcoholism used in treatment: Contrasting AA and other perspectives with which it is often confused. *Journal of Studies on Alcohol*, 55, 159–166.

- Miller, W. R., & Rollnick, S. (1991). *Motivational interviewing: Preparing people to change addictive behavior*. New York: Guilford Press.
- Miller, W. R., & Rollnick, S. (2002). *Motivational interviewing* (2nd ed.). New York: Guilford Press.
- Miller, W. R., & Rollnick, S. (2013). *Motivational interviewing: Helping people change* (3rd ed.). New York, Guilford Press.
- Miller, W. R., & Rose, G. (2009). Toward a theory of motivational interviewing. *American Psychologist*, 64(6), 527–537.
- Miller, W. R., & Rose, G. S. (2015). Motivational interviewing and decisional balance: Contrasting responses to client ambivalence. *Behavioural and Cognitive Psychotherapy*, 43(2), 129–141.
- Miller, W. R., Sovereign, R. G., & Krege, B. (1988). Motivational interviewing with problem drinkers: II. The Drinker's Check-up as a preventive intervention. *Behavioural Psychotherapy*, 16, 251–258.
- Miller, W. R., & Tonigan, J. S. (1996). Assessing drinkers' motivation for change: The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES). *Psychology of Addictive Behaviors*, 10, 81–89.
- Miller, W. R., Zweben, A., DiClemente, C. C., & Rychtarik, R. G. (1992). *Motivational Enhancement Therapy manual: A clinical research guide for therapists and individuals with alcohol abuse and dependence*. Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.
- Minkoff, K. (1989). An integrated treatment model for dual diagnosis of psychosis and addiction. *Hospital and Community Psychiatry*, 40(10), 1031–1036.
- Minuchin, S. (1974). *Families and family therapy*. Cambridge, MA: Harvard University Press.
- Monti, P. M., Colby, S. M., & O'Leary, T. A. (Eds.). (2001). *Adolescents, alcohol, and substance abuse: Reaching teens through brief interventions*. New York: Guilford Press.
- Monti, P. M., Rohsenhow, D. J., Colby, S. M., & Abrams, D. B. (1995). Smoking among alcoholics during and after treatment: Implications for models, treatment strategies, and policy. In J. B. Fertig & J. P. Allen (Eds.), *Alcohol and tobacco: From basic science to clinical practice* (NIDA Monograph No. 30, pp. 187–206; NIH Publication No. 95-3931). Rockville, MD: National Institute on Drug Abuse.
- Monti, P. M., Rohsenhow, D. J., Swift, R. M., Gulliver, S. B., Colby, S. M., Mueller, T. I., et al. (2001). Naltrexone and cue exposure with coping and communication skills training for alcoholics: Treatment process and 1-year outcomes. *Alcoholism, Clinical and Experimental Research*, 25, 1634–1647.
- Moos, R. H. (2006). Social contexts and substance use. In W. R. Miller & K. M. Carroll (Eds.), *Rethinking substance abuse: What the science shows, and what we should do about it* (pp. 182–200). New York: Guilford Press.
- Moos, R. H., Finney, J. W., & Cronkite, R. C. (1990). *Alcoholism treatment: Context, process, and outcome*. New York: Oxford University Press.
- Moos, R. H., & Moos, B. S. (2006). Participation in treatment and alcoholics anonymous: A 1-year follow-up of initially untreated individuals. *Journal of Clinical Psychology*, 62(6), 735–750.
- Morgenstern, J., Labouvie, E., McCrady, B. S., Kahler, C. W., & Frey, R. M. (1997). Affiliation with Alcoholics Anonymous after treatment: A study of its therapeutic effects and mechanisms of action. *Journal of Consulting and Clinical Psychology*, 65(5), 768–777.
- Morie, K. P., Garavan, H., Bell, R. P., De Sanctis, P., Krakowski, M. I., & Foxe, J. J. (2014). Intact inhibitory control processes in abstinent drug abusers: Part 2. A high-density electrical mapping study in former cocaine and heroin addicts. *Neuropharmacology*, 82(1), 151–160.

- Moyers, T. B., & Houck, J. (2011). Combining motivational interviewing with cognitive behavioral treatments for substance abuse: Lessons from the COMBINE Research Project. *Cognitive and Behavioral Practice*, 18(1), 38–45.
- Mueser, K. T., Bellack, A. S., & Blanchard, J. J. (1992). Comorbidity of schizophrenia and substance abuse: Implications for treatment. *Journal of Consulting and Clinical Psychology*, 60, 845–856.
- Mullen, P. D., Richardson, M. A., Quinn, V. P., & Ershoff, D. H. (1997). Postpartum return to smoking: Who is at risk and when. *American Journal of Health Promotion*, 11(5), 323–330.
- Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin*, 126(2), 24–59.
- Myers, M. G., Brown, S. A., Tate, S., Abrantes, A., & Tomlinson, K. (1999). Toward brief interventions for adolescents with substance abuse and comorbid psychiatric problems. In P. M. Monti, S. M. Colby, & T. A. O'Leary (Eds.), *Adolescents, alcohol and substance abuse: Reaching teens through brief interventions* (pp. 275–296). New York: Guilford Press.
- Nathan, P. E. (1988). The addictive personality is the behavior of the addict. *Journal of Consulting and Clinical Psychology*, 56(2), 183–188.
- National Academy of Sciences, Committee on the Social and Economic Impact of Pathological Gambling. (1999). *Pathological gambling: A critical review*. Washington, DC: National Academy Press.
- Newcomb, M. D. (1992). Understanding the multidimensional nature of drug use and abuse: The role of consumption, risk factors and protective factors. In M. Glantz & R. Pickens (Eds.), *Vulnerability to drug abuse* (pp. 255–298). Washington, DC: American Psychological Association.
- Newcomb, M. D., & Bentler, P. M. (1988). *Consequences of adolescent drug use: Impact on the lives of young adults*. Newbury Park, CA: SAGE.
- Newcomb, M. D., Scheier, L. M., & Bentler, P. M. (1993). Effects of adolescent drug use on adult mental health: A prospective study of a community sample. *Experimental and Clinical Psychopharmacology*, 1, 215–241.
- Newlin, D. B., Miles, D. R., van den Bree, M. B., Gupman, A. E., & Pickens, R. W. (2000). Environmental transmission of DSM-IV substance use disorders in adoptive and step families. *Alcoholism: Clinical and Experimental Research*, 24(12), 1785–1794.
- Noel, J. G., & Thomson, N. R. (2012). Children's alcohol cognitions prior to drinking onset: Discrepant patterns from implicit and explicit measures. *Psychology of Addictive Behaviors*, 26(3), 451.
- Norcross, J. C. (Ed.). (2013). *Psychotherapy relationships that work* (2nd ed.). New York: Oxford University Press.
- Norcross, J. C., Krebs, P. M., & Prochaska, J. O. (2011). Stages of change. *Journal of Clinical Psychology: In Session*, 67(2), 143–154.
- Nowak, M. A. (2006). *Evolutionary dynamics*. Cambridge, MA: Harvard University Press.
- Nowinski, J. (1999). Self-help groups for addictions. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 287–305). New York: Oxford University Press.
- Nowinski, J., Baker, S., & Carroll, K. (1992). *Twelve-step facilitation therapy manual: A clinical research guide for therapists treating individuals with alcohol abuse and dependence* (NIAAA Project MATCH Monograph Series, Vol. 1). Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.
- O'Brien, C. P., Childress, A. R., McLellan, A. T., & Ehrman, R. (1992). Classical conditioning in drug-dependent humans. *Annals of New York Academy of Science*, 654, 400–415.

- O'Connor, E., Carbonari, J. P., & DiClemente, C. C. (1996). Gender and smoking cessation: A factor structure comparison of processes of change. *Journal of Consulting and Clinical Psychology, 64*, 130–138.
- O'Connor, R. M., & Colder, C. R. (2015). The prospective joint effects of self-regulation and impulsive processes on early adolescence alcohol use. *Journal of studies on Alcohol and Drugs, 76*(6), 884–894.
- O'Donnell, A., Anderson, P., Newbury-Birch, D., Schulte, B., Schmidt, C., Reimer, J., et al. (2013). The impact of brief alcohol interventions in primary health care: A systematic review of reviews. *Alcohol and Alcoholism, 49*, 66–78.
- O'Malley, S. S., & Kosten, T. R. (2006). Pharmacotherapy of addictive disorders. In W. R. Miller & K. M. Carroll (Eds.), *Rethinking substance abuse: What the science shows, and what we should do about it* (pp. 240–256). New York: Guilford Press.
- Onrust, S. A., Otten, R., Lammers, J., & Smit, F. (2016). School-based programmes to reduce and prevent substance use in different age groups: What works for whom: Systematic review and meta-regression analysis. *Clinical Psychology Review, 44*, 45–59.
- Orford, J. (1985) *Excessive appetites: A psychological view of addictions*. New York: Wiley.
- Orford, J., Hodgson, R., Copello, A., John, B., Smith, M., Black, R., et al. (2006). The clients' perspective on change during treatment for an alcohol problem: Qualitative analysis of follow-up interviews in the UK Alcohol Treatment Trial. *Addiction, 101*, 60–68.
- Orleans, C. T., & Slade, J. (Eds.). (1993). *Nicotine addiction: Principles and management*. New York: Oxford University Press.
- Osher, F. C., & Kofoed, L. (1989). Treatment of patients with psychiatric and substance use disorders. *Hospital and Community Psychiatry, 40*(10), 1025–1030.
- Page, J. B., Fletcher, J., & True, W. R. (1988). Psychosociocultural perspectives on chronic cannabis use: The Costa Rican follow-up. *Journal of Psychoactive Drugs, 20*(1), 57–65.
- Palamari, J. J., Davies, S., Ompad, D. C., Cleland, C. M., & Weitzman M. (2015). Powder cocaine and crack use in the United States: An examination of risk for arrest and socioeconomic disparities in use. *Drug and Alcohol Dependence, 149*, 108–116.
- Pallonen, U. E., Prochaska, J. O., Velicer, W. F., Prokhorov, A. V., & Smith, N. F. (1998). Stages of acquisition and cessation for adolescent smoking: An empirical integration. *Addictive Behaviors, 23*(3), 303–324.
- Palmateer, N., Kimber, J., Hickman, M., Hutchinson, S., Rhodes, T., & Goldberg, D. (2010). Evidence for the effectiveness of sterile injecting equipment provision in preventing hepatitis C and human immunodeficiency virus transmission among injecting drug users: A review of reviews. *Addiction, 105*, 844–859.
- Pandina, R. J., Johnson, V., & Labouvie, E. W. (1992). Affectivity: A central mechanism in the development of drug dependence. In M. Glantz & R. Pickens (Eds.), *Vulnerability to drug abuse* (pp. 179–210) Washington, DC: American Psychological Association.
- Parrish, D., von Sternberg, K., Castro, Y., & Velasquez, M. M. (2016). Processes of change in preventing alcohol exposed pregnancy: A mediation analysis. *Journal of Consulting and Clinical Psychology, 84*(6), 803–812.
- Patten, C. A., Goggin, K., Harris, K. J., Richter, K. P., Williams, K., Decker, P. A., et al. (2016). Relationship of autonomy social support to quitting motivation in diverse smokers. *Addiction Research and Theory, 24*(6), 477–482.
- Peele, S. (1985). *Meaning of addiction: Compulsive experience and its interpretation*. Lexington, MA: Lexington Books.
- Penberthy, J. K., Ait-Daoud, N., Breton, M., Kovatchev, B., DiClemente, C. C., &

- Johnson, B. A. (2007). Evaluating readiness and treatment seeking effects in a pharmacotherapy trial for alcohol dependence. *Alcoholism: Clinical and Experimental Research*, 31, 1538–1544.
- Penberthy, J. K., Hook, J. N., Vaughan, M. D., Davis, D. E., Wagley, J. N., DiClemente, C. C., et al. (2011). Impact of motivational changes on drinking outcomes in pharmacobehavioral treatment for alcohol dependence. *Alcoholism: Clinical and Experimental Research*, 35(9), 1694–1704.
- Pentz, M. A. (2010). Translating research into practice and practice into research for drug use prevention. In L. M. Scheier (Ed.), *Handbook of drug use etiology: Theory, methods and empirical findings* (pp. 581–596). Washington, DC: American Psychological Association.
- Perz, C. A., DiClemente, C. C., & Carbonari, J. P. (1996). Doing the right thing at the right time?: Interaction of stages and processes of change in successful smoking cessation. *Health Psychology*, 15, 462–468.
- Piko, B. F., & Balázs, M. Á. (2012). Authoritative parenting style and adolescent smoking and drinking. *Addictive Behaviors*, 37(3), 353–356.
- Piko, B. F., & Kovács, E. (2010). Do parents and school matter?: Protective factors for adolescent substance use. *Addictive Behaviors*, 35(1), 53–56.
- PMI Working Group. (2015, September 17). *The Precision Medicine Initiative Cohort Program—Building a research foundation for 21st-century medicine*. Report to the Advisory Committee to the Director, NIH.
- Pollak, K. I., Carbonari, J. P., DiClemente, C. C., Niemann, Y. F., & Mullen, P. D. (1998). Causal relationships of processes of change and decisional balance: Stage specific models for smoking. *Addictive Behaviors*, 23(4), 437–448.
- Prochaska, J. J., Delucchi, K., & Hall, S. A. (2004). A meta-analysis of smoking cessation interventions with individuals in substance abuse treatment or recovery. *Journal of Consulting and Clinical Psychology*, 72(6), 1144–1156.
- Prochaska, J. J., Hall, S. M., Tsoh, J. Y., Eisendrath, S., Rossi, J. S., Redding, C. A., et al. (2008). Treating tobacco dependence in clinically depressed smokers: Effect of smoking cessation on mental health functioning. *American Journal of Public Health*, 98(3), 446–448.
- Prochaska, J. O. (1979). *Systems of psychotherapy: A transtheoretical analysis*. Homewood, IL: Dorsey Press.
- Prochaska, J. O., & DiClemente, C. C. (1982). Transtheoretical therapy: Toward a more integrative model of change. *Psychotherapy: Theory, Research and Practice*, 19(3), 276–288.
- Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology*, 51, 390–395.
- Prochaska, J. O., & DiClemente, C. C. (1984). *The Transtheoretical approach: Crossing the traditional boundaries of therapy*. Malabar, FL: Krieger.
- Prochaska, J. O., & DiClemente, C. C. (1985). Common processes of change in smoking, weight control and psychological distress. In S. Shiffman & T. A. Wills (Eds.), *Coping and substance abuse* (pp. 345–362). New York: Academic Press.
- Prochaska, J. O., & DiClemente, C. C. (1986). Toward a comprehensive model of change. In W. R. Miller & N. Heather (Eds.), *Treating addictive behaviors: Processes of change* (pp. 3–27). New York: Plenum Press.
- Prochaska, J. O., & DiClemente, C. C. (1992). Stages of change in the modification of problem behavior. In M. Hersen, R. Eisler, & P. M. Miller (Eds.), *Progress in behavior modification* (Vol. 28, pp. 184–214). Sycamore, IL: Sycamore.
- Prochaska, J. O., & DiClemente, C. C. (1998). Comments, criteria and creating better models. In W. R. Miller & N. Heather (Eds.), *Treating addictive behaviors* (2nd ed., pp. 39–45). New York: Plenum Press.

- Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to the addictive behaviors. *American Psychologist*, 47, 1102–1114.
- Prochaska, J. O., DiClemente, C. C., Velicer, W. F., & Rossi, J. S. (1993). Standardized, individualized, interactive and personalized self-help programs for smoking cessation. *Health Psychology*, 12, 399–405.
- Prochaska, J. O., DiClemente, C. C., Velicer, W. F., Ginpil, S., & Norcross, J. C. (1985). Predicting change in smoking status for self-changers. *Addictive Behaviors*, 10, 395–406.
- Prochaska, J. O., & Norcross, J. (2013). *Systems of Psychotherapy: A transtheoretical analysis* (8th ed.). New York: Brooks Cole.
- Prochaska, J. O., Norcross, J. C., & DiClemente, C. C. (1994). *Changing for good*. New York: Morrow.
- Prochaska, J. O., Norcross, J. C., & DiClemente, C. C. (2013). Applying the stages of change. *Psychotherapy in Australia*, 19(2), 10–15.
- Prochaska, J. O., & Velicer, W. F. (1997). Response: Misinterpretations and misapplications of the Transtheoretical Model. *American Journal of Health Promotion*, 12, 11–12.
- Prochaska, J. O., Velicer, W. F., DiClemente, C. C., & Fava, J. (1988). Measuring processes of change: Applications to the cessation of smoking. *Journal of Consulting and Clinical Psychology*, 56(4), 520–528.
- Prochaska, J. O., Velicer, W. F., DiClemente, C. C., Guadagnoli, J. O., & Rossi, J. S. (1991). Patterns of change: Dynamic typology applied to smoking cessation. *Multivariate Behavioral Research*, 26, 83–107.
- Prochaska, J. O., Velicer, W. F., Rossi, J. S., Goldstein, M. G., Marcus, B. H., Rakowski, W., et al. (1994). Stages of change and decisional balance for twelve problem behaviors. *Health Psychology*, 13(1), 39–46.
- Project MATCH Research Group. (1997a). Matching alcoholism treatments to client heterogeneity: Project MATCH post-treatment drinking outcomes. *Journal of Studies on Alcohol*, 58(1), 7–29.
- Project MATCH Research Group. (1997b). Project MATCH secondary a priori hypotheses. *Addiction*, 92(12), 1671–1698.
- Project MATCH Research Group. (1998a). Matching alcoholism treatments to client heterogeneity: Project MATCH three-year drinking outcomes. *Alcoholism Clinical and Experimental Research*, 22, 1300–1311.
- Project MATCH Research Group. (1998b). Therapist effects in three treatments for alcohol problems. *Psychotherapy Research*, 8(4), 455–474.
- Quigley, L. A., & Marlatt, G. A. (1996). Drinking among young adults: Prevalence, patterns, and consequences. *Alcohol Health and Research World*, 20, 185–191.
- Quinn, P. D., & Fromme, K. (2011). The role of person–environment interactions in increased alcohol use in the transition to college. *Addiction*, 106, 1104–1113.
- Rach-Beisel, J., Scott, J., & Dixon, L. (1999). Co-occurring severe mental illness and substance use disorders: A review of recent research. *Psychiatric Services*, 50, 1427–1434.
- Rakowski, W., Ehrich, B., Dube, C. E., & Pearlman, D. N. (1997). Screening mammography and constructs from the Transtheoretical Model: Associations using two definitions of the stages of adoption. *Annals of Behavioral Medicine*, 18(2), 91–100.
- Reback, H. (1992). Alcohol and drug use among American minorities. In J. E. Trimble, C. S. Bolek, & S. J. Niemcryk (Eds.), *Ethnic and multicultural drug abuse: Perspectives on current research*. (pp. 23–58). New York: Haworth Press.
- Redding, C. A., Prochaska, J. O., Armstrong, K., Rossi, J. S., Hoepfner, B. B.,

- Sun, X., et al. (2015). Randomized trial outcomes of a TTM-tailored condom use and smoking intervention in urban adolescent females. *Health Education Research*, 30, 162–178.
- Regier, D. A., Farmer, M. E., Rae, D. S., Locke, B. Z., Keith, S. J., Judd, L. L., et al. (1990). Comorbidity of mental disorders with alcohol and other drugs. *Journal of the American Medical Association*, 264, 2511–2518.
- Reid, D. K. (1998). Scaffolding: A broader view. *Journal of Learning Disabilities*, 31, 386–396.
- Reuter, J., Raedler, T., Rose, M., Hand, I., Gläscher, J., & Büchel, C. (2005). Pathological gambling is linked to reduced activation of the mesolimbic reward system. *Nature Neuroscience* 3, 147–148.
- Rhodes, T., Lilly, R., Fernández, C., Giorgino, E., KEMMESIS, U. E., Ossebaard, H. C., et al. (2003). Risk factors associated with drug use: The importance of 'risk environment.' *Drugs: Education, Prevention, and Policy*, 10(4), 303–329.
- Richmond-Rakerd, L. S., Fleming, K. A., & Slutske, W. S. (2016). Investigating progression in substance use initiation using a discrete-time multiple event process survival mixture (MEPSUM) approach. *Clinical Psychological Science*, 4(2), 167–182.
- Rief, W., & Martin, A. (2014). How to use the new DSM-5 somatic symptom disorder diagnosis in research and practice: A critical evaluation and a proposal for modification. *Annual Review of Clinical Psychology*, 10, 339–367.
- Riley, W. T., Serrano, K. J., Nilsen, W., & Atienza, A. A. (2015). Mobile and wireless technologies in health behavior and the potential for intensively adaptive interventions. *Current Opinions in Psychology*, 5, 67–71.
- Robbins, T. W., Ersche, K. D., & Everitt, B. J. (2008). Drug addiction and the memory systems of the brain. *Annals of the New York Academy of Sciences*, 1141, 1–21.
- Robins, L. (1974). A follow-up study of Vietnam veterans' drug use. *Journal of Drug Issues*, 4, 61–63.
- Robins, L. N. (1979). Addict careers. In R. L. DuPont, A. Goldstein, & J. O'Donnell (Eds.), *Handbook on drug abuse* (pp. 325–336). Rockville, MD: National Institute on Drug Abuse.
- Robins, L. N. (1980). The natural history of drug abuse. In U.S. Department of Health and Human Services, *Theories on drug abuse: Contemporary perspectives* (NIDA Research Monograph No. 30, pp. 215–225; DHHS Publication No. ADM 80-967). Washington, DC: U.S. Government Printing Office.
- Robins, L. N., Helzer, J. E., & Davis, D. H. (1975). Narcotic use in Southeast Asia and afterward. *Archives of General Psychiatry*, 2, 955–961.
- Robinson, T. E., & Berridge, K. C. (1993). The neural basis of drug craving: An incentive-sensitization theory of addiction. *Brain Research Reviews*, 18(3), 247–291.
- Rogers, C. R. (1954). *Psychotherapy and personality change*. Chicago: University of Chicago Press.
- Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: Free Press.
- Rollnick, S., Heather, N., & Bell, A. (1992). Negotiating behaviour change in medical settings: The development of brief motivational interviewing. *Journal of Mental Health*, 1, 25–39.
- Rollnick, S., Mason, P., & Butler, C. (1999). *Health behavior change*. London: Churchill Livingstone.
- Rosenberg, S. D., Goodman, L. A., Osher, F. C., Swartz, M. S., Essock, S. M., Butterfield, M. I., et al. (2001). Prevalence of HIV, hepatitis B, and hepatitis C in people with severe mental illness. *American Journal of Public Health*, 91(1), 31.

- Rosenthal, R. N., & Westreich, L. (1999). Treatment of persons with dual diagnoses of substance abuse disorders and other psychological problems. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 439–476). New York: Oxford University Press.
- Rothfleisch, J. (1997). *Comparison of two measures of stages of change among drug abusers*. Unpublished doctoral dissertation, University of Houston, Houston, TX.
- Rounsaville, D. B. (2010). *Lapse, relapse, and chasing the wagon: Post-treatment drinking and recovery*. Unpublished doctoral dissertation, University of Maryland, College Park, MD.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78.
- Ryan, R. M., Plant, R. W., & O'Malley, S. (1995). Initial motivations for alcohol treatment: Relations with patient characteristics, treatment involvement, and dropout. *Addictive Behaviors*, 20(3), 279–297.
- Rychtarik, R. G., Connors, G. J., Whitney, R. B., McGillicuddy, N. B., Fitterling, J. M., & Wirtz, P. W. (2000). Treatment settings for persons with alcoholism: Evidence for matching clients to inpatient versus outpatient care. *Journal of Consulting and Clinical Psychology*, 68(2), 277–289.
- Saitz, R., Cheng, D. M., Winter, M., Kim, T. W., Meli, S. V., Allensworth-Davies, D., et al. (2013). Chronic care management for dependence on alcohol and other drugs. *Journal of the American Medical Association*, 310(11), 1156–1167.
- Saitz, R., Palfai, T. P., Cheng, D. M., Alford, D. P., Bernstein, J. A., Lloyd-Tavaglini, C. A., et al. (2014). Screening and brief intervention for drug use in primary care: The ASPIRE randomized clinical trial. *Journal of the American Medical Association*, 312(5), 502–513.
- Saitz, R., Svikis, D., D'Onofrio, G., Kraemer, K. L., & Perl, H. (2006). Challenges applying alcohol brief intervention in diverse practice settings: Populations, outcomes, and costs. *Alcoholism: Clinical and Experimental Research*, 30, 332–338.
- Samenow, C. P. (2010). A biopsychosocial model of hypersexual disorder/sexual addiction. *Sexual Addiction and Compulsivity*, 17(2), 69–81.
- SAMHSA-HRSA Center for Integrated Health Solutions. (n.d.). What is integrated care? Retrieved from www.integration.samhsa.gov/about-us/what-is-integrated-care.
- Sandy, J. M., Yaeger, A. M., Cleary, S. D., & Shinar, O. (2001). Coping dimensions, life stress, and adolescent substance use: A latent growth analysis. *Journal of Abnormal Psychology*, 110(2), 309–323.
- Sanjuan, P. M., & Langenbucher, J. W. (1999). Age-limited populations: Youth, adolescents, and older adults. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 477–498). New York: Oxford University Press.
- Sarason, B. R., Sarason, I. G., & Pierce, G. R. (1990). *Social support: An interactive view*. New York: Wiley.
- Sartor, C. E., Lessov-Schlaggar, C. N., Scherrer, J. F., Bucholz, K. K., Madden, P. A. F., Pergadia, M. L., et al. (2010). Initial response to cigarettes predicts rate of progression to regular smoking: Findings from an offspring-of-twins design. *Addictive Behaviors*, 35(9), 771–778.
- Sayette, S. A., & Creswell, K. G. (2016). Self-regulatory failure and addiction. In K. D. Vohs & R. F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications* (3rd ed., pp. 571–590). New York: Guilford Press.
- Schinke, S. P., Botvin G. J., & Orlandi, M. A. (1991). *Substance abuse in children and adolescents: Evaluation and intervention*. Newbury Park, CA: SAGE.

- Schmid, H., & Gmel, G. (1999). Identification and characteristics of clusters of smokers within the early stages of change. *Swiss Journal of Psychology*, 58(2), 111–122.
- Schmidt, L. A., & Weisner, C. M. (1999). Public health perspectives on access and need for substance abuse treatment. In J. A. Tucker, D. M. Donovan, & G. A. Marlatt (Eds.), *Changing addictive behavior: Bridging clinical and public health strategies* (pp. 67–96). New York: Guilford Press.
- Schoenmakers, T. M., de Bruin, M., Lux, I. F., Goertz, A. G., Van Kerkhof, D. H., & Wiers, R. W. (2010). Clinical effectiveness of attentional bias modification training in abstinent alcoholic patients. *Drug and Alcohol Dependence*, 109, 30–36.
- Schoenmakers, T., Lux, I. F. M., Goertz, A. G., Van Kerkhof, D. H. A. T., De Bruin, M., & Wiers, R. W. (2010). A randomized clinical trial to measure effects of an intervention to modify attentional bias in alcohol dependent patients. *Drug and Alcohol Dependence*, 109, 30–36.
- Schorling, J. B. (1995). The stages of change of rural African-American smokers. *American Journal of Preventive Medicine*, 11(3), 170–177.
- Schottenfeld, R. S. (1989). Involuntary treatment of substance abuse disorders—impediments to success. *Psychiatry*, 52(2), 164–176.
- Schuckit, M. A. (1980). A theory of alcohol and drug abuse: A genetic approach. In D. J. Lettieri, M. Sayers, & H. W. Pearson (Eds.), *Theories on drug abuse: Selected contemporary perspectives* (NIDA Research Monograph No. 30, pp. 297–302; DHHS Publication No. ADM 80-967). Rockville, MD: National Institute on Drug Abuse.
- Schuckit, M. A. (1995). A long-term study of sons of alcoholics. *Alcohol Health and Research World*, 19, 172–175.
- Schuckit, M. A., Goodwin, D. W., & Winokur, G. A. (1972). A half-sibling study of alcoholism. *American Journal of Psychiatry*, 128, 1132–1136.
- Schuckit, M. A., & Smith, T. L. (2011). Onset and course of alcoholism over 25 years in middle classmen. *Drug and Alcohol Dependence*, 113, 21–28.
- Schulenberg, J., Maggs, J. L., Steinman, K. J., & Zucker, R. A. (2001). Development matters: Taking the long view on substance abuse etiology and intervention during adolescence. In P. M. Monti, S. M. Colby, & T. A. O’Leary (Eds.), *Adolescents, alcohol, and substance abuse: Reaching teens through brief interventions* (pp. 19–57). New York: Guilford Press.
- Schulenberg, J., Wadsworth, K. N., O’Malley, P. M., Bachman, J. G., & Johnston, L. D. (1996). Adolescent risk factors for binge drinking during the transition to young adulthood: Variable and pattern-centered approaches to change. *Developmental Psychology*, 32, 659–674.
- Schulte, M., Cousijn, J., den Uyl, T. E., Goudriaan, A. E., van den Brink, W., Veltman, D. J., et al. (2014). Recovery of neurocognitive functions following sustained abstinence after substance dependence and implications for treatment. *Clinical Psychology Review*, 34(7), 531–550.
- Seaman, P., Edgar, F., & Ikegwuonu, T. (2013). The role of alcohol price in young adult drinking cultures in Scotland. *Drugs: Education, Prevention and Policy*, 20(4), 278–285.
- Segal, B. (1992). Ethnicity and drug-taking behavior. In J. E. Trimble, C. S. Bolek, & S. J. Niemcryk (Eds.), *Ethnic and multicultural drug abuse: Perspectives on current research* (pp. 269–312). New York: Haworth Press.
- Selvini-Palazzoli, M. (1974). *Self-starvation: From the intrapsychic to the transpersonal approach*. London: Chaucer.
- Servigny, E. L., Fuleihan, B. K., & Ferdik, F. V. (2013). Do drug courts reduce the use of incarceration?: A meta-analysis. *Journal of Criminal Justice*, 41(6), 416–425.

- Shaffer, H. J. (1992). The psychology of stage change: The transition from addiction to recovery. In J. H. Lowison, P. Ruiz, R. B. Millman, & J. G. Langrod (Eds.), *Substance abuse: A comprehensive textbook* (2nd ed., pp. 100–105). Baltimore: Williams & Wilkins.
- Shaw, M. A., & DiClemente, C. C. (2016). Relapse vulnerability measure of the Alcohol Abstinence Self-Efficacy Scale predicting time to first drink and amount of drinking. *Journal of Studies on Alcohol and Drugs*, 77(3), 521–525.
- Shedler, J., & Block, J. (1990). Adolescent drug use and psychological health: A longitudinal inquiry. *American Psychologist*, 45, 612–630.
- Sheedy, C. K., & Whitter, M. (2009). *Guiding principles and elements of recovery-oriented systems of care: What do we know from the research?* (DHHS Publication No. SMA 09-4439). Rockville, MD: Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration.
- Sheehan, T., & Owen, P. (1999). The disease model. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 268–286). New York: Oxford University Press.
- Sher, K. J. (1987). Stress response dampening. In K. E. Leonard & H. T. Blane (Eds.), *Psychological theories of drinking and alcoholism* (2nd ed., pp. 227–271). New York: Guilford Press.
- Sher, K. J. (1993). Children of alcoholics and the intergenerational transmission of alcoholism: A biopsychosocial perspective. In J. S. Baer, G. A. Marlatt, & R. J. McMahon (Eds.), *Addictive behaviors across the lifespan: Prevention, treatment and policy issues* (pp. 3–33). Newbury Park, CA: SAGE.
- Sher, K. J., Walitzer, K. S., Wood, P. K., & Brent, E. E. (1991). Characteristics of children of alcoholics: Putative risk factors, substance use and abuse, and psychopathology. *Journal of Abnormal Psychology*, 111, 427–448.
- Shiffman, S. (1982). Relapse following smoking cessation: A situational analysis. *Journal of Consulting and Clinical Psychology*, 50, 71–86.
- Shiffman, S., Hickcox, M., Paty, J. A., Gnys, M., Kassel, J. D., & Richards, T. J. (1997). The abstinence violation effect following smoking lapses and temptations. *Cognitive Therapy and Research*, 21(5), 497–523.
- Shiffman, S., & Wills, T. A. (Eds.). (1985). *Coping and substance abuse*. New York: Academic Press.
- Siegel, J. P. (2015). Emotional regulation in adolescent substance use disorders: Rethinking risk. *Journal of Child and Adolescent Substance Abuse*, 24(2), 67–79.
- Simpson, D. D., & Joe, G. W. (1993). Motivation as a predictor of early dropout from drug abuse treatment. *Psychotherapy*, 30, 357–368.
- Simpson, D. D., Joe, G. W., & Lehman, W. E. K. (1986). *Addiction careers: Summary of studies based on the DARP 12-year follow-up* (DHHS Publication No. ADM 86-1420). Rockville, MD: National Institute on Drug Abuse.
- Simpson, D. D., & Sells, S. B. (1982). *Evaluation of drug abuse treatment effectiveness: Summary of the DARP follow-up research* (DHHS Publication No. ADM 82-12109). Rockville, MD: National Institute on Drug Abuse.
- Singer, B. F., Anselme, P., Robinson, M. J. F., & Vezina, P. (2014). Neuronal and psychological underpinnings of pathological gambling. *Frontiers in Behavioral Neuroscience*, 8, 1–2.
- Sinha, R. (2011). New findings on biological factors predicting addiction relapse vulnerability. *Current Psychiatry Reports*, 13, 398–405.
- Sinha, R., Garcia, M., Paliwal, P., Kreek, M. J., & Rounsaville, B. J. (2006). Stress-induced cocaine craving and hypothalamic-pituitary-adrenal responses are predictive of cocaine relapse outcomes. *Archives of General Psychiatry*, 63(3), 324–331.

- Skinner, B. F. (1938). *The behavior of organisms: An experimental analysis*. New York: Appleton-Century-Crofts.
- Skinner, B. F. (1953). *Science and human behavior*. New York: Macmillan.
- Slade, J. (1999) Nicotine. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 162–170). New York: Oxford University Press.
- Slaymaker, V. J., & Sheehan, T. (2013) Disease model treatments. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp.434–453). New York: Oxford University Press.
- Smart, R. G. (1980). An availability-proneness theory of illicit drug abuse. In D. J. Lettieri, M. Sayers, & H. W. Pearson (Eds.), *Theories on drug abuse: Selected contemporary perspectives* (NIDA Research Monograph No. 30, pp. 46–49; DHHS Publication No. ADM 80-967). Rockville, MD: National Institute on Drug Abuse.
- Smith, G. T., & Anderson, K. G. (2001). Personality and learning factors combine to create risk for adolescent problem drinking: A model and suggestions for intervention. In P. M. Monti, S. M. Colby, & T. A. O'Leary (Eds.), *Adolescents, alcohol, and substance abuse: Reaching teens through brief interventions* (pp. 109–144). New York: Guilford Press.
- Smith, K. J., Subich, L. M., & Kolodner, C. (1995). The Transtheoretical Model's stages and processes of change and their relation to premature termination. *Journal of Counseling Psychology*, 42, 34–39.
- Smith, M. L., Warne, R. T., Barry, A. E., Rossheim, M. E., Boyd, M. K., & McKyer, E. L. J. (2015). A biopsychosocial examination of ATOD use among middle and high school students. *American Journal of Health Behavior*, 39(6), 799–808.
- Snow, M., Prochaska, J., & Rossi, J. (1994). Processes of change in Alcoholics Anonymous: Maintenance factors in long-term sobriety. *Journal of Studies on Alcohol*, 55, 362–371.
- Sobell, L. C., Cunningham, J. A., Sobell, M. B., & Toneatto, T. (1993). A life-span perspective on natural recovery (self-change) from alcohol problems. In J. S. Baer, G. A. Marlatt, & R. J. McMahon (Eds.), *Addictive behaviors across the life span*. Newbury Park, CA: SAGE.
- Sobell, L. C., Ellingsstad, T. P., & Sobell, M. B. (2000). Natural recovery from alcohol and drug problems: Methodological review of the research with suggestions for future directions. *Addictions*, 95(5), 749–764.
- Sobell, M. B., & Sobell, L. C. (1999). Stepped care for alcohol problems: An efficient method for planning and delivering clinical services. In J. A. Tucker, D. M. Donovan, & G. A. Marlatt (Eds.), *Changing addictive behavior* (pp. 331–343). New York: Guilford Press.
- Soderstrom, C. A., Smith, G. S., Dischinger, P. C., McDuff, D. R., Hebel, J. R., Gorelick, D. A., et al. (1997). Psychoactive substance use disorders among seriously injured trauma center patients. *Journal of the American Medical Association*, 277, 1769–1774.
- Solomon, R., & Corbit, J. (1974). An opponent-process theory of motivation: Temporal dynamics of affect. *Psychological Review*, 81, 119–145.
- Southwick, L., Steele, C., Marlatt, A., & Lindell, M. (1981). Alcohol-related expectancies: Defined by phase of intoxication and drinking experience. *Journal of Consulting and Clinical Psychology*, 49, 713–721.
- Speiglmán, R. (1997). Mandated AA attendance for recidivist drivers: Policy issues. *Addiction*, 92, 1133–1136.
- Stanton, M. D. (1980). A family theory of drug abuse. In U.S. Department of Health and Human Services, *Theories on drug abuse: Contemporary perspectives* (NIDA Research Monograph No. 30, pp. 147–156; DHHS Publication No. ADM 80-967). Washington, DC: U.S. Government Printing Office.

- Stanton, M. D. (1997). Role of family and significant others in the engagement and retention of drug-dependent individuals. In L. S. Onken, J. D. Blaine, & J. J. Boren (Eds.), *Beyond the therapeutic alliance: Keeping the drug-dependent individual in treatment* (NIDA Research Monograph No. 165, pp. 157–180). Rockville, MD: National Institute on Drug Abuse.
- Stanton, M. D., Todd, T. C., & Associates. (1982). *The family therapy of drug abuse and addiction*. New York: Guilford Press.
- Steffenhagen, R. A. (1980). Self-esteem theory of drug abuse. In D. J. Lettieri, M. Sayers, & H. W. Pearson (Eds.), *Theories on drug abuse: Selected contemporary perspectives* (NIDA Research Monograph No. 30, pp. 157–163; DHHS Publication No. ADM 80-967). Rockville, MD: National Institute on Drug Abuse.
- Steinglass, P. L., Bennett, L., Wolin, S., & Reiss, D. (1987). *The alcoholic family*. New York: Basic Books.
- Stine, S. M., & Kosten, T. R. (2009). Reduction of opiate withdrawal-like symptoms by cocaine abuse during methadone and buprenorphine maintenance. *American Journal of Drug and Alcohol Abuse*, 20(4), 445–458.
- Stone, A. L., Becker, L. G., Huber, A. M., & Catalano, R. F. (2012). Review of risk and protective factors of substance use and problem use in emerging adulthood. *Addictive Behaviors*, 37(7), 747–775.
- Stone, C. A. (1998). The metaphor of scaffolding: Its utility for the field of learning disabilities. *Journal of Learning Disabilities*, 31, 344–364.
- Stotts, A., DiClemente, C. C., Carbonari, J. P., & Mullen, P. (1996). Pregnancy smoking cessation: A case of mistaken identity. *Addictive Behaviors*, 21, 459–471.
- Stotts, A. L., DiClemente, C. C., Carbonari, J. P., & Mullen, P. D. (2000). Postpartum return to smoking: Staging a “suspended” behavior. *Health Psychology*, 19(4), 324–332.
- Stotts, A. L., Groff, J. Y., Velasquez, M. M., Benjamin-Garner, R., Green, C., Carbonari, J. P., et al. (2009). Ultrasound feedback and motivational interviewing targeting smoking cessation in the second and third trimesters of pregnancy. *Nicotine and Tobacco Research*, 11(8), 961–968.
- Substance Abuse and Mental Health Services Administration. (2011). *Results from the 2010 National Survey on Drug Use and Health: Summary of national findings* (NSDUH Series H-41, HHS Publication No. SMA 1-4658). Rockville, MD: Author.
- Substance Abuse and Mental Health Services Administration. (2013). *Systems-level implementation of screening, brief intervention, and referral to treatment. Technical Assistance Publication (TAP) Series 33* (HHS Publication No. SMA 13-4741). Rockville, MD: Author.
- Sue, D. W., & Sue, D. (2002). *Counseling the culturally diverse: Theory and practice* (4th ed.). New York: Wiley.
- Sullivan, T. N., King, E. M., & Farrell, A. D. (2010). Relation between witnessing violence and drug use initiation among rural adolescents: Parental monitoring and family support as protective factors. *Journal of Clinical Child and Adolescent Psychology*, 33(3), 488–498.
- Suris, A. M., Trapp, M. C., DiClemente, C. C., & Cousins, J. (1998). Application of the Transtheoretical Model of behavior change for obesity in Mexican American women. *Addictive Behaviors*, 23(4), 655–668.
- Sussman, S., Arriaza, B., & Grigsby, T. J. (2014). Alcohol, tobacco, and other drug misuse prevention and cessation programming for alternative high school youth: A review. *Journal of School Health*, 84(11), 748–758.
- Sutker, P. B., & Allain, A. N. (1988). Issues in personality conceptualizations of

- addictive behaviors. *Journal of Consulting and Clinical Psychology*, 56(2) 172–182.
- Sutton, S. (1996). Can “stage of change” provide guidance in treatment of addiction?: A critical examination of Prochaska and DiClemente’s model. In G. Edwards & C. Dare (Eds.), *Psychotherapy, psychological treatments and the addictions*. New York: Cambridge University Press.
- Sutton, S. (2001). Back to the drawing board?: A review of applications of the Trans-theoretical Model to substance abuse. *Addiction*, 96(1), 175–186.
- Syed, M. (2015). *Black box thinking: Why most people never learn from their mistakes—but some do*. New York: Penguin Press.
- Szalavitz, M. (2016). *Unbroken brain*. New York: St. Martin’s Press.
- Tanner-Smith, E., Steinka-Fry, K., Hennessy, E., Lipsey, M., & Winters, K. (2015). Can brief alcohol interventions for youth also address concurrent illicit drug use?: Results from a meta-analysis. *Journal of Youth and Adolescence*, 44(5), 1011–1023.
- Tarter, R. E. (1988). Are there inherited behavioral traits that predispose to substance abuse? *Journal of Consulting and Clinical Psychology*, 56(2) 189–196.
- Tarter, R. E., & Mezzich, A. C. (1992). Ontogeny of substance abuse: Perspectives and findings. In M. Glantz & R. Pickens (Eds.), *Vulnerability to drug abuse* (pp. 149–178). Washington, DC: American Psychological Association.
- Tejero, A., Trujols, J., Hernandez, E., Perez de los Cobos, J., & Casas, M. (1997). Processes of change assessment in heroin addicts following the Prochaska and DiClemente Transtheoretical Model. *Drug and Alcohol Dependence*, 47(1), 31–37.
- Tiffany, S. T., & Conklin, C. A. (2000). A cognitive processing model of alcohol craving and compulsive alcohol use. *Addiction*, 95, S145–S153.
- Timms, K. P., Rivera, D. E., Collins, L. M., & Piper, M. E. (2014). A dynamical systems approach to understanding self-regulation in smoking cessation behavior change. *Nicotine and Tobacco Research*, 16(Suppl. 2), S159–S168.
- Tobler, N. (1986). Meta-analysis of 143 adolescent drug prevention programs: Quantitative outcome results of program participants compared to a control or comparison group. *Journal of Drug Issues*, 16, 537–567.
- Toneatto, T., Sobell, L. C., Sobell, M. B., & Rubel, E. (1999). Natural Recovery from cocaine dependence. *Psychology of Addictive Behaviors*, 13(4), 259–268.
- Tsuang, M. T., Lyons, M. J., Meyer, J. M., Doyle, T., Eisen, S. A., Goldberg, J., et al. (1998). Co-occurrence of abuse of different drugs in men: The role of drug-specific and shared vulnerabilities. *Archives of General Psychiatry*, 55, 967–972.
- Tuchfield, B. S. (1981). Spontaneous remission in alcoholics: Empirical observations and theoretical implications. *Journal of Studies on Alcohol*, 42, 626–641.
- Tucker, J. A., Donovan, D. M., & Marlatt, A. (Eds.). (1999). *Changing addictive behavior: Bridging clinical and public health strategies*. New York: Guilford Press.
- U.S. Department of Health and Human Services, Office of the Surgeon General. (2016b, November). *Facing addiction in America: The Surgeon General’s report on alcohol, drugs, and health* (HHS Publication No. SMA 16-4991). Washington, DC: U.S. Government Printing Office.
- U.S. Department of Health and Human Services. (1980). *Theories on drug abuse: Contemporary perspectives* (NIDA Research Monograph No. 30; DHHS Publication No. ADM 80-967). Washington, DC: U.S. Government Printing Office.
- U.S. Department of Health and Human Services. (2014, January). *The health consequences of smoking: 50 years of progress. A report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for

- Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.
- U.S. Department of Health and Human Services. (2016a). *E-cigarette use among youth and young adults: A report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.
- Vaillant, G. E. (1985). *The natural history of alcoholism: Causes, patterns, and paths to recovery*. Cambridge, MA: Harvard University Press.
- Vaillant, G. E. (1995). *The natural history of alcoholism revisited*. Cambridge, MA: Harvard University Press.
- Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. *Advances in Experimental Social Psychology*, 29, 271–360.
- Van Eijk, J., Demirakca, T., Frischknecht, U., Hermann, D., Mann, K., & Ende, G. (2013). Rapid partial regeneration of brain volume during the first 14 days of abstinence from alcohol. *Alcoholism: Clinical and Experimental Research*, 37(1), 67–74.
- Van Ryzin, M. J., Fosco, G. M., & Dishion, T. J. (2012). Family and peer predictors of substance use from early adolescence to early adulthood: An 11-year prospective analysis. *Addictive Behaviors*, 37(12), 1314–1324.
- Vanable, P. A., Carey, M. P., Carey, K. B., & Maisto, S. A. (2003). Smoking among psychiatric outpatients: Relationship to substance use, diagnosis, and illness severity. *Psychology of Addictive Behaviors*, 17(4), 259.
- Velasquez, M. M., Carbonari, J. P., & DiClemente, C. C. (1999). Psychiatric severity and behavior change in alcoholism: The relation of Transtheoretical Model variables to psychiatric distress in dually diagnosed patients. *Addictive Behaviors*, 24(4), 481–496.
- Velasquez, M., Crouch, C., Stephens, N., & DiClemente, C. C. (2015). *Group treatment for substance abuse: Stages of change therapy manual* (2nd ed.). New York: Guilford Press.
- Velasquez, M. M., Hecht, J., Quinn, V. P., Emmons, R. M., DiClemente, C. C., & Dolan-Mullen, P. (2000). Application of motivational interviewing to prenatal smoking cessation: Training and implementation issues. *Tobacco Control* 2000, 9(Suppl.), iii, 36–40.
- Velicer, W. F., DiClemente, C. C., Prochaska, J. O., & Brandenburg, N. (1985). A decisional balance measure for assessing and predicting smoking status. *Journal of Personality and Social Psychology*, 48(5), 1279–1289.
- Velicer, W. F., DiClemente, C. C., Rossi, J., & Prochaska, J. O. (1990). Relapse situations and self-efficacy: An integrative model. *Addictive Behaviors*, 15, 271–283.
- Velicer, W. F., Fava, J. L., Prochaska, J. O., Abrams, D. B., Emmons, K. M., & Pierce, J. P. (1995). Distribution of smokers by stage in three representative samples. *Preventive Medicine*, 24, 401–411.
- Velicer, W. F., Prochaska, J. O., Bellis, J. M., DiClemente, C. C., Rossi, J. S., Fava, J. L., et al. (1993). An expert system intervention for smoking cessation. *Addictive Behaviors*, 18, 269–290.
- Velicer, W. F., Prochaska, J. O., Rossi, J. S., & Snow, M. (1992). Assessing outcome in smoking cessation studies. *Psychological Bulletin*, 111, 23–41.
- Vgotsky, L. S. (1978). The interaction between learning and development. In L. S. Vgotsky, *Mind and society* (pp. 79–91). Cambridge, MA: Harvard University Press.
- Vohs, K. D., & Baumeister, R. F. (Eds.). (2016). *Handbook of self-regulation*. New York: Guilford Press.

- Volkow, N. D., & Morales, M. (2015). The brain on drugs: From reward to addiction. *Cell*, 162, 712–725.
- Volkow, N. D., Baler, R. D., Compton, W. M., & Weiss, S. R. B. (2014). Adverse health effects of marijuana use. *New England Journal of Medicine*, 370, 2219–2227.
- Volkow, N. D., Koob, G. G., & McLellan, A. T. (2016). Neurobiologic advances from the brain disease model of addiction. *New England Journal of Medicine*, 374, 363–371.
- Volpicelli, J. R., Pettinati, H. M., McClellan, A. T., & O'Brien, C. P. (2001). *Combining medication and psychosocial treatments for addictions: The BRENDA approach*. New York: Guilford Press.
- Vowles, K. E., McEntee, M. L., Julnes, P. S., Frohe, T., Ney, J. P. A., & van der Goes, D. N. (2015). Rates of opioid misuse, abuse, and addiction in chronic pain: A systematic review and data synthesis. *Pain*, 156(4), 569–576.
- Vuchinich, R. E. (1999). Behavioral economics as a framework for organizing the expanded range of substance abuse interventions. In J. A. Tucker, D. M. Donovan, & G. A. Marlatt (Eds.), *Changing addictive behavior* (pp. 191–220). New York: Guilford Press.
- Wagenaar, A. C., Salois, M. J., & Komro, K. A. (2009). Effects of beverage alcohol price and tax levels on drinking: A meta-analysis of 1003 estimates from 112 studies. *Addiction*, 104(2), 179–190.
- Wager, T. D., Rilling, J. K., Smith, E. E., Sokolik, A., Casey, K. L., Davidson, R. J., et al. (2004). Placebo-induced changes in fMRI in the anticipation and experience of pain. *Science*, 303, 1162–1167.
- Wagner, F. A., & Anthony, J. C. (2007). Male–female differences in the risk of progression from first use to dependence upon cannabis, cocaine, and alcohol. *Drug and Alcohol Dependence*, 86(2), 191–198.
- Wakefield, J. C. (2016). Diagnostic issues and controversies in DSM-5: Return of the false positives problem. *Annual Review of Clinical Psychology*, 12, 105–132.
- Walker, R. D., Lambert, M. D., Walker, P. S., Kivlahan, D. R., Donovan, D. M., Howard, M. O., et al. (1996). Alcohol abuse in urban Indian adolescents and women: A longitudinal study for assessment and risk evaluation. *American Indian and Alaska Native Mental Health Research*, 7(1), 1–97.
- Walters, S. T., & Rotgers, F. (Eds.). (2013). *Treating substance abuse: Theory and technique* (3rd ed.). New York: Guilford Press.
- Walton, M. A., Goldstein, A. L., Chermack, S. T., McCammon, R. J., Cunningham, R. M., Barry, K. L., et al. (2008). Brief alcohol intervention in the emergency department: Moderators of effectiveness. *Journal of Studies on Alcohol and Drugs*, 69(4), 550–560.
- Wanberg, K. W., Horn, J. L., & Foster, F. M. (1977). A differential assessment model for alcoholism: The scales of the Alcohol Use Inventory. *Journal of Studies on Alcohol*, 38(3), 512–543.
- Weaver, M. F., & Schnoll, S. H. (1999). Stimulants: Amphetamines and cocaine. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 105–120). New York: Oxford University Press.
- Weinstein, A., & Lejoyeux, M. (2015). New developments on the neurobiological and pharmaco-genetic mechanisms underlying internet and videogame addiction. *American Journal on Addictions*, 24(2), 117–125.
- Weinstein, N. D., Rothman, A. J., & Sutton, S. R. (1998). Stage theories in health behavior: Conceptual and methodological issues. *Health Psychology*, 17(3), 290–299.
- Weiss, R. D. (1992). The role of psychopathology in the transition from drug use to

- abuse and dependence. In M. Glantz & R. Pickens (Eds.), *Vulnerability to drug abuse* (pp. 137–148). Washington, DC: American Psychological Association.
- Weiss, R. D., O'Malley, S. S., Hosking, J. D., Locastro, J. S., & Swift, R. (2008). Do patients with alcohol dependence respond to placebo?: Results from the COMBINE Study. *Journal of Studies on Alcohol and Drugs*, 69(6), 878–884.
- Welte, J. W., Barnes, G. M., Tidwell, M. O., & Hoffman, J. H. (2008). The prevalence of problem gambling among adolescents and young adults: Results from a national survey. *Journal of Gambling Studies*, 24(2), 119–133.
- Werch, C. E. (2001). Preventive alcohol interventions based on a stages of acquisition model. *American Journal of Health Behavior*, 25(3), 206–216.
- Werch, C. E., Carlson, J. M., Owen, D. M., DiClemente, C. C., & Carbonari, J. P. (2001). Effects of a stage based alcohol prevention intervention for inner-city youth. *Journal of Drug Education*, 31(2), 123–138.
- Werch, C. E., Carlson, J. M., Pappas, D. M., Dunn, M., & Williams, T. (1997). Risk factors related to urban youth stage of alcohol initiation. *American Journal of Health Behavior*, 22(5), 377–387.
- Werch, C. E., & DiClemente, C. C. (1994). A multi-component stage model for matching drug prevention strategies and messages to youth stage of use. *Health Education Research: Theory and Practice*, 9(1), 37–46.
- Werch, C. E., Moore, M. J., DiClemente, C. C., Bledsoe, R., & Jobli, E. (2005). A multi-health behavior intervention integrating physical activity and substance use prevention for adolescents. *Prevention Science*, 6(3), 213–226.
- Werch, C. E., Pappas, D. M., Carlson, J. M., & DiClemente, C. C. (1998). Short- and long-term effects of a pilot prevention program to reduce alcohol consumption. *Substance Use and Misuse*, 33, 2303–2321.
- Werch, C. E., Pappas, D. M., Carlson, J. M., DiClemente, C. C., Chally, P. S., & Sinder, J. A. (2000). Results of a social norm intervention to prevent binge drinking among first-year residential college students. *College Health*, 49, 85–92.
- Wesley, M. J., Lohrenz, T., Koffarnus, M. N., McClure, S. M., De La Garza, R., Salas, R., et al. (2014). Choosing money over drugs: The neural underpinnings of difficult choice in chronic cocaine users. *Journal of Addiction*, 2014.
- West, R., & Sobal, T. (2006). "Catastrophic" pathways to smoking cessation: Findings from national survey. *British Medical Journal*, 332(7539), 458–460.
- Whitehead, P. C., & Wechsler, H. (1980). Implications for future research and public policy. In H. Wechsler (Ed.), *Minimum-drinking-age laws*. Lexington, MA: Heath.
- Wholey, D. (1984). *The courage to change*. New York: Warner Books.
- Wiatrowski, M. D., Griswold, D. B., & Roberts, M. K. (1981). Social control theory and delinquency. *American Psychological Review*, 46, 525–541.
- Wickizer, T., Maynard, C., Artherly, A., Frederick, M., Koepsell, T., Krupski, A., et al. (1994, February). Completion rates of clients discharged from drug and alcohol treatment programs in Washington state. *American Journal of Public Health*, 84(2), 215–221.
- Wiers, R. W., Bartholow, B. D., van den Wildenberg, E., Thush, C., Engels, R. C., Sher, K. J., et al. (2007). Automatic and controlled processes and the development of addictive behaviors in adolescents: A review and a model. *Pharmacology, Biochemistry and Behavior*, 86(2), 263–283.
- Wiers, R. W., Cox, W. M., Field, M., Fadardi, J. S., Palfai, T. P., Schoenmakers, T., et al. (2006). The search for new ways to change implicit alcohol-related cognitions in heavy drinkers. *Alcoholism: Clinical and Experimental Research*, 30(2), 320–331.
- Wiers, R. W., Gladwin, T. E., Hofmann, W., Salemink, E., & Ridderinkhof, K. R.

- (2013). Cognitive bias modification and cognitive control training in addiction and related psychopathology mechanisms, clinical perspectives, and ways forward. *Clinical Psychological Science*, 1(2), 192–212.
- Wiers, R. W., & Stacy, A. W. (Eds.). (2006). *Handbook of implicit cognition*. Thousand Oaks, CA: SAGE.
- Wierzbicki, M., & Pekarik, G. (1993). A meta-analysis of psychotherapy dropout. *Professional Psychology: Research and Practice*, 29, 190–195.
- Wilcox, C., & Bogenschütz, M. (2013). Pharmacotherapies for alcohol and drug use disorders. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 526–550). New York: Oxford University Press.
- Wild, T. C., Newton-Taylor, B., & Alletto, R. (1998). Perceived coercion among clients entering substance abuse treatment: Structural determinants and psychological determinants. *Addictive Behaviors*, 23(1), 81–95.
- Wilens, T. E., Martelon, M., Joshi, G., Bateman, C., Fried, R., Petty, C., et al. (2011). Does ADHD predict substance use disorders?: A 10-year follow-up study of young adults with ADHD. *Journal of the American Academy of Child and Adolescent Psychiatry*, 50(6), 543–553.
- Williams, J. M., & Ziednois, D. (2004). Addressing tobacco among individuals with a mental illness or an addiction. *Addictive Behaviors*, 29(6), 1067–1083.
- Willoughby, R. W., & Edens, J. F. (1996). Construct validity and predictive utility of the stages of change scale for alcoholics. *Journal of Substance Abuse*, 8(3), 275–291.
- Wills, T. A., McNamara, G., Vaccaro, D., & Hirky, A. E. (1996). Escalated substance use: A longitudinal grouping analysis from early to middle adolescence. *Journal of Abnormal Psychology*, 105, 166–180.
- Wills, T. A., Pokhrel, P., Morehouse, E., & Fenster, B. (2011). Behavioral and emotional regulation and adolescent substance use problems: A test of moderation effects in a dual-process model. *Psychology of Addictive Behaviors*, 25(2), 279–292.
- Wills, T. A., Sandy, J. M., Yaeger, A. M., Cleary, S. D., & Shinar, O. (2001). Coping dimensions, life stress, and adolescent substance use: A latent growth analysis. *Journal of Abnormal Psychology*, 110(2), 309–323.
- Wills, T. A., & Shiffman, S. (1985). Coping and substance use: A conceptual framework. In S. Shiffman & T. A. Wills (Eds.), *Coping and substance abuse*. Orlando, FL: Academic Press.
- Windle, M., & Davies, P. T. (1999). Developmental theory and research. In K. E. Leonard & H. T. Blane (Eds.), *Psychological theories of drinking and alcoholism* (2nd ed., pp. 164–202). New York: Guilford Press.
- Windsor, R. A., Woodby, L. L., Miller, T. M., Hardin, J. M., Crawford, M. A., & DiClemente, C. C. (2000). Effectiveness of agency for health care policy and research clinical practice guideline and patient education methods for pregnant smokers in Medicaid maternity care. *American Journal of Obstetrics and Gynecology*, 182(1), 68–75.
- Winters, J., Fals-Stewart, W., O'Farrell, T. J., Birchler, G. R., & Kelley, M. L. (2002). Behavioral couples therapy for female substance-abusing patients: Effects on substance abuse and relationship adjustment. *Journal of Consulting and Clinical Psychology*, 70(2), 344–355.
- Witkiewitz, K., Bowen, S., Harrop, E., Douglas, H., Enkema, M., & Hendrickson, C. (2014). Mindfulness-based treatment to prevent addictive behavior relapse: Theoretical models and hypothesized mechanisms of change. *Substance Use and Misuse*, 49, 513–524.
- Witkiewitz, K., Bowen, S., Hau, S., & Douglas, H. (2013). Mindfulness-based relapse prevention for substance craving. *Addictive Behavior*, 38, 1563–1571.

- Witkiewitz, K., & Marlatt, G. A. (2007). Modeling the complexity of post-treatment drinking: It's a rocky road to relapse. *Clinical Psychology Review, 27*, 724–738.
- Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition*. Stanford, CA: Stanford University Press.
- Wonderlich, S. A. (1995). Personality and eating disorders. In K. D. Brownell & C. G. Fairburn (Eds.), *Eating disorders and obesity: A comprehensive handbook* (pp. 171–176). New York: Guilford Press.
- Wood, D., Bruner, J. S., & Ross, G. (1976). The roll of tutoring in problem solving. *Journal of Child Psychology and Psychiatry, 17*, 89–100.
- Wood, M. D., Read, J. P., Palfai, T. P., & Stevenson, J. F. (2001). Social influence processes and college student drinking: The mediational role of alcohol outcome expectancies. *Journal of Studies on Alcohol, 62*(1), 32–43.
- Woods, M., & Armstrong, K. (2012). *When the door opened: Stories of recovery from co-occurring mental illness and substance use disorders*. Manchester, NH: Westbridge.
- Wu, J., & Witkiewitz, K. (2008). Network support for drinking: An application of multiple groups growth mixture modeling to examine client-treatment matching. *Journal of Studies on Alcohol and Drugs, 69*(1), 21–29.
- Yahne, C. E., & Miller, W. R. (1999). Enhancing motivation for treatment and change. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (pp. 235–249). New York: Oxford University Press.
- Ziedonis, D. M., & Trudeau, K. (1997). Motivation to quit using substances among individuals with schizophrenia: Implications for a motivation-based treatment model. *Schizophrenia Bulletin, 23*, 229–238.
- Zucker, R. A., & Gombert, E. S. L. (1986). Etiology of alcoholism reconsidered: The case for a biopsychosocial process. *American Psychologist, 41*, 783–793.

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